GenCore version 4.5

OM protein - protein search, using sw model

Run on: January 29, 2002, 12:49:36 ; Search time 38.4 Seconds
(without alignments)
192.899 Million cell updates/sec

Title: US-09-710-239-29
Perfect score: 580
Sequence: 1 RGDKGETGEQGDRGIKGHRG.....DAGPVGPPGPPGPPGPPGPP 100

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 522463 seqs, 74073290 residues

Total number of hits satisfying chosen parameters: 522463

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_1101:*
1: /SIDS8/gcgdata/geneseq/geneseqp/AA1980.DAT:*
2: /SIDS8/gcgdata/geneseq/geneseqp/AA1981.DAT:*
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21: /SIDS8/gcgdata/geneseq/geneseqp/AA2000.DAT:*
22: /SIDS8/gcgdata/geneseq/geneseqp/AA2001.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	580	100.0	100	22	AAE02715	Recombinant human
2	580	100.0	100	22	AAB68069	Amino acid sequenc
3	580	100.0	200	22	AAE02714	Recombinant human
4	580	100.0	200	22	AAB68068	Amino acid sequenc
5	580	100.0	219	21	AAY84553	A C-terminal fragm
6	580	100.0	219	21	AAY84555	A C-terminal fragm
7	580	100.0	219	21	AAY84402	C-terminal 219 ami
8	580	100.0	333	22	AAE02713	Recombinant human
9	580	100.0	333	22	AAB68067	Amino acid sequenc
10	580	100.0	441	22	AAG75593	Human colon cancer
11	580	100.0	449	21	AAB43439	Human cancer assoc
12	580	100.0	510	22	AAE02712	Recombinant human
13	580	100.0	510	22	AAB68066	Amino acid sequenc
14	580	100.0	662	22	AAE02718	Human alpha1 (I) t
15	580	100.0	662	22	AAB68072	Amino acid sequenc
16	580	100.0	1057	21	AAY84541	Amino acid sequenc
17	580	100.0	1057	21	AAY84544	A human collagen 1
18	580	100.0	1058	21	AAY84403	Amino acid sequenc
19	580	100.0	1107	17	AAR89472	Collagen/decorin(a
20	580	100.0	1107	21	AAY84540	Amino acid sequenc
21	580	100.0	1169	17	AAR89469	Collagen/BMP-2B fu
22	580	100.0	1169	21	AAY84537	Amino acid sequenc
23	580	100.0	1171	17	AAR89470	Collagen/TGF-beta-
24	580	100.0	1171	21	AAY84538	A chimeric collage
25	580	100.0	1341	16	AAR71701	Collagen alpha 1 (
26	580	100.0	1341	21	AAY96122	Collagen type I al
27	580	100.0	1388	17	AAR89471	Collagen/decorin f
28	580	100.0	1388	21	AAY84539	Amino acid sequenc
29	580	100.0	1449	22	AAE02535	Porcine alpha1(I)
30	580	100.0	1464	19	AAW68485	Human recombinant
31	580	100.0	1464	22	AAU14136	Human novel protei
32	580	100.0	1464	22	AAB82454	Human pro-alpha-1
33	573	98.8	1463	22	AAE02532	Bovine alpha1(I) c
34	472	81.4	1442	16	AAR79480	Rat type II collag
35	461	79.5	1418	16	AAR71703	Collagen alpha 1 (
36	461	79.5	1418	21	AAY96124	Collagen type II a
37	461	79.5	1487	19	AAW61562	Human type II coll
38	453	78.1	1418	15	AAR59751	Type II collagen.
39	453	78.1	1418	22	AAB35624	Human type II coll
40	450	77.6	936	22	AAB70107	Gelatin protein.
41	392	67.6	1196	13	AAR28916	Type III procollag
42	391	67.4	1466	22	AAE02537	Porcine alpha1(III
43	390	67.2	1466	22	AAE02533	Bovine alpha1(III)
44	390	67.2	1466	22	AAE02534	Bovine alpha1(III)
45	384	66.2	1078	16	AAR71704	Collagen alpha 1 (

ALIGNMENTS

RESULT 1
AAE02715
ID AAE02715 standard; Protein; 100 AA.
XX
AC AAE02715;
XX
DT 06-AUG-2001 (first entry)
XX
DE Recombinant human gelatin #4.
XX
KW Human; recombinant gelatin; binding agent; stabilising agent; emulsifier;
KW encapsulant; film-forming agent; moisturising agent; thickening agent;
KW gelling agent; colloidal agent; adhesive agent; gel capsule; photography;
KW plasma expander; colloidal volume replacement material; graft coating;
KW medical sponge; medical plug; micro-carrier; edible composition;
KW protein supplement; fat substitute; nutritional supplement; cell culture;
KW edible coating; cosmetic; vaccine; therapy; arthritis; athrosis;
KW cartilage degeneration; joint flexibility; food industry; beverage.
XX
OS Homo sapiens.
XX
PN WO200134646-A2.
XX
PD 17-MAY-2001.
XX
PF 10-NOV-2000; 2000WO-US30791.
XX
PR 12-NOV-1999; 99US-0165114.
PR 15-MAY-2000; 2000US-0204437.
XX
PA (FIBR-) FIBROGEN INC.
XX
PI Chang RC, Kivirikko KI, Neff TB, Olsen DR, Polarek JW;
XX

DR WPI; 2001-329072/34.
XX
PT Gelatin useful for pharmaceuticals, cosmetics and edible foods, is
PT prepared recombinantly -
XX
PS Disclosure; Page 133-134; 137pp; English.
XX
CC The patent discloses recombinant human gelatin which is useful
CC in various compositions including binding agents, encapsulants,
CC stabilising agents, film-forming agents, moisturising agents,
CC emulsifiers, thickening agents, gelling agents, colloidal agents,
CC adhesive agents, pharmaceutical compositions, hard gel capsules,
CC soft gel capsules, plasma expander, colloidal volume replacement
CC materials, graft coatings, medical sponges, medical plugs,
CC pharmaceutical stabilisers, micro-carriers, edible compositions,
CC protein supplements, fat substitutes, nutritional supplements,
CC edible coatings, photographic compositions, cosmetic compositions,
CC industrial composition, cell culture compositions and compositions
CC for use in the laboratory. Pharmaceutical compositions comprising
CC recombinant gelatin are used as vaccines. They are also used to
CC treat various joint conditions such as arthritis, athrosis and
CC other conditions related to the degeneration of cartilage and joint
CC flexibility. Recombinant gelatin is also used in food and beverage
CC industries. The present sequence is a recombinant human gelatin.
XX
SQ Sequence 100 AA;

Query Match 100.0%; Score 580; DB 22; Length 100;
Best Local Similarity 100.0%; Pred. No. 1.6e-35;
Matches 100; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db 1 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 60

Qy 61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
|||||||||||||||||||||||||||||||||||||||||
Db 61 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 100

RESULT 2
AAB68069
ID AAB68069 standard; Protein; 100 AA.
XX
AC AAB68069;
XX
DT 09-JUL-2001 (first entry)
XX
DE Amino acid sequence of a recombinant human gelatin.
XX
KW Human; gelatin; vaccine; anaphylactic reaction.
XX
OS Homo sapiens.
XX
PN WO200134801-A2.
XX
PD 17-MAY-2001.
XX
PF 10-NOV-2000; 2000WO-US30843.
XX
PR 12-NOV-1999; 99US-0165114.
PR 15-MAY-2000; 2000US-0204437.
XX
PA (FIBR-) FIBROGEN INC.
XX
PI Chang RC, Kivirikko KI, Neff TB, Olsen DR, Polarek JW;
XX
DR WPI; 2001-308784/32.
XX
PT Vaccine formulations (I) comprising recombinant human gelatin, useful
PT for vaccinating against e.g. mumps, measles, rubella, tetanus, rabies
PT and cholera, the gelatin is non-immunogenic and confers stability at
PT ambient temperatures -
XX
PS Claim 11; Page 126-127; 130pp; English.
XX
CC The present sequence represents a human recombinant gelatin polypeptide.
CC The recombinant gelatin polypeptide is used to produce vaccine
CC formulations of the invention. The recombinant human gelatin is
CC non-immunogenic (therefore reducing anaphylactic reactions) and confers
CC stability at ambient temperatures. The vaccine formulation comprises a
CC vaccine formulated for the prevention of a disease selected from vaccinia
CC virus (small pox), polio virus (Salk and Sabin), mumps, measles, rubella,
CC diphtheria, tetanus, Varicella-Zoster (chicken pox/shingles), pertussis
CC (whooping cough), Bacille Calmette-Geurin (BCG, tuberculosis),
CC haemophillus influenzae meningitis, rabies, cholera, Japanese
CC encephalitis virus, salmonella typhi, shigella, hepatitis A and B,
CC adenovirus, yellow fever, foot and mouth disease, herpes simplex virus,
CC respiratory syncytial virus, rotavirus, Dengue, West Nile virus, turkey
CC herpes virus (Marek's disease), influenza and/or anthrax.
XX
SQ Sequence 100 AA;

Query Match 100.0%; Score 580; DB 22; Length 100;
Best Local Similarity 100.0%; Pred. No. 1.6e-35;
Matches 100; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db 1 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 60

Qy 61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
|||||||||||||||||||||||||||||||||||||||||
Db 61 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 100

RESULT 3
AAE02714
ID AAE02714 standard; Protein; 200 AA.
XX
AC AAE02714;
XX
DT 06-AUG-2001 (first entry)
XX
DE Recombinant human gelatin #3.
XX
KW Human; recombinant gelatin; binding agent; stabilising agent; emulsifier;
KW encapsulant; film-forming agent; moisturising agent; thickening agent;
KW gelling agent; colloidal agent; adhesive agent; gel capsule; photography;
KW plasma expander; colloidal volume replacement material; graft coating;
KW medical sponge; medical plug; micro-carrier; edible composition;
KW protein supplement; fat substitute; nutritional supplement; cell culture;
KW edible coating; cosmetic; vaccine; therapy; arthritis; athrosis;
KW cartilage degeneration; joint flexibility; food industry; beverage.
XX
OS Homo sapiens.
XX
PN WO200134646-A2.
XX
PD 17-MAY-2001.
XX
PF 10-NOV-2000; 2000WO-US30791.
XX
PR 12-NOV-1999; 99US-0165114.
PR 15-MAY-2000; 2000US-0204437.
XX
PA (FIBR-) FIBROGEN INC.
XX
PI Chang RC, Kivirikko KI, Neff TB, Olsen DR, Polarek JW;
XX
DR WPI; 2001-329072/34.
XX
PT Gelatin useful for pharmaceuticals, cosmetics and edible foods, is
PT prepared recombinantly -

XX
PS Example 1; Page 133; 137pp; English.
XX
CC The patent discloses recombinant human gelatin which is useful
CC in various compositions including binding agents, encapsulants,
CC stabilising agents, film-forming agents, moisturising agents,
CC emulsifiers, thickening agents, gelling agents, colloidal agents,
CC adhesive agents, pharmaceutical compositions, hard gel capsules,
CC soft gel capsules, plasma expander, colloidal volume replacement
CC materials, graft coatings, medical sponges, medical plugs,
CC pharmaceutical stabilisers, micro-carriers, edible compositions,
CC protein supplements, fat substitutes, nutritional supplements,
CC edible coatings, photographic compositions, cosmetic compositions,
CC industrial composition, cell culture compositions and compositions
CC for use in the laboratory. Pharmaceutical compositions comprising
CC recombinant gelatin are used as vaccines. They are also used to
CC treat various joint conditions such as arthritis, athrosis and
CC other conditions related to the degeneration of cartilage and joint
CC flexibility. Recombinant gelatin is also used in food and beverage
CC industries. The present sequence is a recombinant human gelatin.
XX
SQ Sequence 200 AA;

Query Match 100.0%; Score 580; DB 22; Length 200;
Best Local Similarity 100.0%; Pred. No. 2.8e-35;
Matches 100; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db 101 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 160

Qy 61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
||||||||||||||||||||||||||||||||||||||||||
Db 161 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 200

RESULT 4
AAB68068
ID AAB68068 standard; Protein; 200 AA.
XX
AC AAB68068;
XX
DT 09-JUL-2001 (first entry)
XX
DE Amino acid sequence of a recombinant human gelatin.
XX
KW Human; gelatin; vaccine; anaphylactic reaction.
XX
OS Homo sapiens.
XX
PN WO200134801-A2.
XX
PD 17-MAY-2001.
XX
PF 10-NOV-2000; 2000WO-US30843.
XX
PR 12-NOV-1999; 99US-0165114.
PR 15-MAY-2000; 2000US-0204437.
XX
PA (FIBR-) FIBROGEN INC.
XX
PI Chang RC, Kivirikko KI, Neff TB, Olsen DR, Polarek JW;
XX
DR WPI; 2001-308784/32.
XX
PT Vaccine formulations (I) comprising recombinant human gelatin, useful
PT for vaccinating against e.g. mumps, measles, rubella, tetanus, rabies
PT and cholera, the gelatin is non-immunogenic and confers stability at
PT ambient temperatures -
XX
PS Claim 11; Page 126; 130pp; English.
XX
CC The present sequence represents a human recombinant gelatin polypeptide.
CC The recombinant gelatin polypeptide is used to produce vaccine
CC formulations of the invention. The recombinant human gelatin is
CC non-immunogenic (therefore reducing anaphylactic reactions) and confers
CC stability at ambient temperatures. The vaccine formulation comprises a
CC vaccine formulated for the prevention of a disease selected from vaccinia
CC virus (small pox), polio virus (Salk and Sabin), mumps, measles, rubella,
CC diphtheria, tetanus, Varicella-Zoster (chicken pox/shingles), pertussis
CC (whooping cough), Bacille Calmette-Geurin (BCG, tuberculosis),
CC haemophillus influenzae meningitis, rabies, cholera, Japanese
CC encephalitis virus, salmonella typhi, shigella, hepatitis A and B,
CC adenovirus, yellow fever, foot and mouth disease, herpes simplex virus,
CC respiratory syncytial virus, rotavirus, Dengue, West Nile virus, turkey
CC herpes virus (Marek's disease), influenza and/or anthrax.
XX
SQ Sequence 200 AA;

Query Match 100.0%; Score 580; DB 22; Length 200;
Best Local Similarity 100.0%; Pred. No. 2.8e-35;
Matches 100; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db 101 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 160

Qy 61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
||||||||||||||||||||||||||||||||||||||||||
Db 161 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 200

RESULT 5
AAY84553
ID AAY84553 standard; Protein; 219 AA.
XX
AC AAY84553;
XX
DT 25-JUL-2000 (first entry)
XX
DE A C-terminal fragment of human collagen type 1 (alpha1).
XX
KW Extracellular matrix protein; self aggregation; hydroxylated proline;
KW trans-4-hydroxyproline; 3-hydroxyproline; recombinant protein production;
KW collagen; fibrinogen; fibronectin; post translational hydroxylation.
XX
OS Homo sapiens.
XX
PN EP992586-A2.
XX
PD 12-APR-2000.
XX
PF 07-OCT-1999; 99EP-0119184.
XX
PR 09-OCT-1998; 98US-0169768.
XX
PA (USSU) US SURGICAL CORP.
XX
PI Gruskin EA, Buechter DD, Zhang G, Connolly K;
XX
DR WPI; 2000-259138/23.
DR N-PSDB; AAA12518.
XX
PT Production of extracellular matrix proteins containing
PT 4-trans-hydroxyproline results in native self aggregating proteins,
PT useful on medical implants -
XX
PS Claim 16; Fig 72; 260pp; English.
XX
CC The specification describes a method for producing an extracellular
CC matrix protein or its fragment. The extracellular matrix protein is
CC capable of self aggregating in a cell which does not ordinarily
CC hydroxylated prolines. The method comprises optimising a nucleic acid
CC sequence for expression in the cell by substitution of codons preferred

```
CC   by that cell for naturally occurring codons not preferred by the cell;
CC   incorporating the nucleic acid sequence into the cell; and contacting
CC   the cell with a hypertonic growth medium containing at least one amino
CC   acid, selected from the group consisting of trans-4-hydroxyproline and
CC   3-hydroxyproline to allow at least one of the amino acids to be
CC   assimilated into the cell and incorporated into the extracellular matrix
CC   protein. The method may be used to make host cells assimilate and
CC   incorporate trans-4-hydroxyproline into proteins. This is especially
CC   useful in the recombinant production of proteins such as collagen,
CC   fibrinogen and fibronectin whose ability to self aggregate and produce
CC   functional proteins depends on the post translational hydroxylation of
CC   proline. The method is also useful in studying the structure and function
CC   of polypeptides which do not normally contain trans-4-hydroxyproline.
CC   The present sequence represents a C-terminal fragment of human collagen
CC   type 1 (alpha1), with optimised codon usage, designated D4.
XX
SQ   Sequence   219 AA;


  Query Match             100.0%;  Score 580;  DB 21;  Length 219;
  Best Local Similarity   100.0%;  Pred. No. 3.1e-35;
  Matches  100;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
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Db      94 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 153

Qy      61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
           |||||||||||||||||||||||||||||||||||||||||
Db     154 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 193


RESULT   6
AAY84555
ID   AAY84555 standard; Protein; 219 AA.
XX
AC   AAY84555;
XX
DT   25-JUL-2000  (first entry)
XX
DE   A C-terminal fragment of human collagen type 1 (alpha2).
XX
KW   Extracellular matrix protein; self aggregation; hydroxylated proline;
KW   trans-4-hydroxyproline; 3-hydroxyproline; recombinant protein production;
KW   collagen; fibrinogen; fibronectin; post translational hydroxylation.
XX
OS   Homo sapiens.
XX
PN   EP992586-A2.
XX
PD   12-APR-2000.
XX
PF   07-OCT-1999;   99EP-0119184.
XX
PR   09-OCT-1998;   98US-0169768.
XX
PA   (USSU ) US SURGICAL CORP.
XX
PI   Gruskin EA,  Buechter DD,  Zhang G,  Connolly K;
XX
DR   WPI; 2000-259138/23.
XX
PT   Production of extracellular matrix proteins containing
PT   4-trans-hydroxyproline results in native self aggregating proteins,
PT   useful on medical implants -
XX
PS   Claim 10; Fig 80; 260pp; English.
XX
CC   The specification describes a method for producing an extracellular
CC   matrix protein or its fragment. The extracellular matrix protein is
CC   capable of self aggregating in a cell which does not ordinarily
CC   hydroxylated prolines. The method comprises optimising a nucleic acid
CC   sequence for expression in the cell by substitution of codons preferred
CC   by that cell for naturally occurring codons not preferred by the cell;
CC   incorporating the nucleic acid sequence into the cell; and contacting
CC   the cell with a hypertonic growth medium containing at least one amino
CC   acid, selected from the group consisting of trans-4-hydroxyproline and
CC   3-hydroxyproline to allow at least one of the amino acids to be
CC   assimilated into the cell and incorporated into the extracellular matrix
CC   protein. The method may be used to make host cells assimilate and
CC   incorporate trans-4-hydroxyproline into proteins. This is especially
CC   useful in the recombinant production of proteins such as collagen,
CC   fibrinogen and fibronectin whose ability to self aggregate and produce
CC   functional proteins depends on the post translational hydroxylation of
CC   proline. The method is also useful in studying the structure and function
CC   of polypeptides which do not normally contain trans-4-hydroxyproline.
CC   The present sequence represents a C-terminal fragment of human collagen
CC   type 1 (alpha2), with optimised codon usage, designated D4.
XX
SQ   Sequence   219 AA;


  Query Match             100.0%;  Score 580;  DB 21;  Length 219;
  Best Local Similarity   100.0%;  Pred. No. 3.1e-35;
  Matches  100;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      94 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 153

Qy      61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
           |||||||||||||||||||||||||||||||||||||||||
Db     154 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 193


RESULT   7
AAY84402
ID   AAY84402 standard; Protein; 219 AA.
XX
AC   AAY84402;
XX
DT   12-JUL-2000  (first entry)
XX
DE   C-terminal 219 amino acids of human alpha1 collagen.
XX
KW   Alpha1 collagen; 3,4-dehydro-L-proline; epoxidation; 3,4-epoxyproline;
KW   collagen; mussel adhesive protein; bioadhesive.
XX
OS   Homo sapiens.
XX
PN   WO200014201-A1.
XX
PD   16-MAR-2000.
XX
PF   07-SEP-1999;   99WO-US20462.
XX
PR   09-SEP-1998;   98US-0099652.
XX
PA   (USSU ) US SURGICAL CORP.
PA   (PAOL/) PAOLELLA D N.
PA   (GRUS/) GRUSKIN E A.
PA   (BUEC/) BUECHTER D D.
XX
PI   Paolella DN,  Gruskin EA,  Buechter DD;
XX
DR   WPI; 2000-271051/23.
DR   N-PSDB; AAZ99842.
XX
PT   Incorporating non-natural amino acid into polypeptide, useful e.g. for
PT   production of bioadhesives, by epoxidation or substitution of
PT   dehydroproline residues  -
XX
PS   Disclosure; Fig 4; 66pp; English.
XX
CC   The present sequence represents the C-terminal 219 amino acids of
CC   the human alpha1 collagen protein. Peptides derived from the protien
```

```
CC   were used to demonstrate incorporation of 3,4-dehydro-L-proline into
CC   the peptide, using the method of the invention. The specification
CC   describes a method for the incorporation of non-natural amino acid
CC   into a polypeptide. The method comprises reacting at least one
CC   3,4-dehydroproline residue in the polypeptide with an epoxidation
CC   reagent from a polypeptide containing at least one 3,4-epoxyproline
CC   residue. The method is used for studying the effects of non-natural
CC   amino acids on structure and function of polypeptides. The method is
CC   also useful for commercial production of collagen or mussel adhesive
CC   proteins (which are useful as bioadhesives), and for incorporating a
CC   wide variety of groups, including therapeutic ligands and biological
CC   probes, into polypeptides.
XX
SQ   Sequence   219 AA;


  Query Match             100.0%;  Score 580;  DB 21;  Length 219;
  Best Local Similarity   100.0%;  Pred. No. 3.1e-35;
  Matches  100;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     94 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 153

Qy     61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
          |||||||||||||||||||||||||||||||||||||||||
Db    154 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 193


RESULT   8
AAE02713
ID   AAE02713 standard; Protein; 333 AA.
XX
AC   AAE02713;
XX
DT   06-AUG-2001  (first entry)
XX
DE   Recombinant human gelatin #2.
XX
KW   Human; recombinant gelatin; binding agent; stabilising agent; emulsifier;
KW   encapsulant; film-forming agent; moisturising agent; thickening agent;
KW   gelling agent; colloidal agent; adhesive agent; gel capsule; photography;
KW   plasma expander; colloidal volume replacement material; graft coating;
KW   medical sponge; medical plug; micro-carrier; edible composition;
KW   protein supplement; fat substitute; nutritional supplement; cell culture;
KW   edible coating; cosmetic; vaccine; therapy; arthritis; athrosis;
KW   cartilage degeneration; joint flexibility; food industry; beverage.
XX
OS   Homo sapiens.
XX
PN   WO200134646-A2.
XX
PD   17-MAY-2001.
XX
PF   10-NOV-2000; 2000WO-US30791.
XX
PR   12-NOV-1999;   99US-0165114.
PR   15-MAY-2000; 2000US-0204437.
XX
PA   (FIBR-) FIBROGEN INC.
XX
PI   Chang RC,  Kivirikko KI,  Neff TB,  Olsen DR,  Polarek JW;
XX
DR   WPI; 2001-329072/34.
XX
PT   Gelatin useful for pharmaceuticals, cosmetics and edible foods, is
PT   prepared recombinantly -
XX
PS   Example 1; Page 132-133; 137pp; English.
XX
CC   The patent discloses recombinant human gelatin which is useful
CC   in various compositions including binding agents, encapsulants,
CC   stabilising agents, film-forming agents, moisturising agents,
CC   emulsifiers, thickening agents, gelling agents, colloidal agents,
CC   adhesive agents, pharmaceutical compositions, hard gel capsules,
CC   soft gel capsules, plasma expander, colloidal volume replacement
CC   materials, graft coatings, medical sponges, medical plugs,
CC   pharmaceutical stabilisers, micro-carriers, edible compositions,
CC   protein supplements, fat substitutes, nutritional supplements,
CC   edible coatings, photographic compositions, cosmetic compositions,
CC   industrial composition, cell culture compositions and compositions
CC   for use in the laboratory. Pharmaceutical compositions comprising
CC   recombinant gelatin are used as vaccines. They are also used to
CC   treat various joint conditions such as arthritis, athrosis and
CC   other conditions related to the degeneration of cartilage and joint
CC   flexibility. Recombinant gelatin is also used in food and beverage
CC   industries. The present sequence is a recombinant human gelatin.
XX
SQ   Sequence   333 AA;


  Query Match             100.0%;  Score 580;  DB 22;  Length 333;
  Best Local Similarity   100.0%;  Pred. No. 4.3e-35;
  Matches  100;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    234 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 293

Qy     61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
          |||||||||||||||||||||||||||||||||||||||||
Db    294 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 333


RESULT   9
AAB68067
ID   AAB68067 standard; Protein; 333 AA.
XX
AC   AAB68067;
XX
DT   09-JUL-2001  (first entry)
XX
DE   Amino acid sequence of a recombinant human gelatin.
XX
KW   Human; gelatin; vaccine; anaphylactic reaction.
XX
OS   Homo sapiens.
XX
PN   WO200134801-A2.
XX
PD   17-MAY-2001.
XX
PF   10-NOV-2000; 2000WO-US30843.
XX
PR   12-NOV-1999;   99US-0165114.
PR   15-MAY-2000; 2000US-0204437.
XX
PA   (FIBR-) FIBROGEN INC.
XX
PI   Chang RC,  Kivirikko KI,  Neff TB,  Olsen DR,  Polarek JW;
XX
DR   WPI; 2001-308784/32.
XX
PT   Vaccine formulations (I) comprising recombinant human gelatin, useful
PT   for vaccinating against e.g. mumps, measles, rubella, tetanus, rabies
PT   and cholera, the gelatin is non-immunogenic and confers stability at
PT   ambient temperatures -
XX
PS   Claim 11; Page 125-126; 130pp; English.
XX
CC   The present sequence represents a human recombinant gelatin polypeptide.
CC   The recombinant gelatin polypeptide is used to produce vaccine
CC   formulations of the invention. The recombinant human gelatin is
CC   non-immunogenic (therefore reducing anaphylactic reactions) and confers
CC   stability at ambient temperatures. The vaccine formulation comprises a
CC   vaccine formulated for the prevention of a disease selected from vaccinia
```

```
CC   virus (small pox), polio virus (Salk and Sabin), mumps, measles, rubella,
CC   diphtheria, tetanus, Varicella-Zoster (chicken pox/shingles), pertussis
CC   (whooping cough), Bacille Calmette-Geurin (BCG, tuberculosis),
CC   haemophillus influenzae meningitis, rabies, cholera, Japanese
CC   encephalitis virus, salmonella typhi, shigella, hepatitis A and B,
CC   adenovirus, yellow fever, foot and mouth disease, herpes simplex virus,
CC   respiratory syncytial virus, rotavirus, Dengue, West Nile virus, turkey
CC   herpes virus (Marek's disease), influenza and/or anthrax.
XX
SQ   Sequence   333 AA;


  Query Match            100.0%;  Score 580;  DB 22;  Length 333;
  Best Local Similarity  100.0%;  Pred. No. 4.3e-35;
  Matches  100;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    234 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 293

Qy     61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
          |||||||||||||||||||||||||||||||||||||||||
Db    294 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 333


RESULT  10
AAG75593
ID   AAG75593 standard; Protein; 441 AA.
XX
AC   AAG75593;
XX
DT   03-SEP-2001  (first entry)
XX
DE   Human colon cancer antigen protein SEQ ID NO:6357.
XX
KW   Human; colon cancer; colon cancer antigen; diagnosis; detection;
KW   colorectal carcinoma; chromosome 17.
XX
OS   Homo sapiens.
XX
PN   WO200122920-A2.
XX
PD   05-APR-2001.
XX
PF   28-SEP-2000; 2000WO-US26524.
XX
PR   29-SEP-1999;   99US-0157137.
PR   03-NOV-1999;   99US-0163280.
XX
PA   (HUMA-) HUMAN GENOME SCI INC.
XX
PI   Ruben SM,  Barash SC,  Birse CE,  Rosen CA;
XX
DR   WPI; 2001-235357/24.
DR   N-PSDB; AAH34998.
XX
PT   Nucleic acids encoding 4277 human colon cancer-associated polypeptides,
PT   useful for preventing, diagnosing and/or treating colorectal cancers -
XX
PS   Claim 11; Page 7817-7819; 9803pp; English.
XX
CC   AAH32943 to AAH37195 and AAG73514 to AAG77788 represent human colon
CC   cancer-associated nucleic acid molecules (N) and proteins (P), where
CC   the proteins are collectively known as colon cancer antigens. The colon
CC   cancer antigens have cytostatic activity and can be used in gene
CC   therapy and vaccine production. N and P may be used in the prevention,
CC   diagnosis and treatment of diseases associated with inappropriate P
CC   expression. For example, N and P may be used to treat disorders
CC   associated with decreased expression by rectifying mutations or deletions
CC   in a patient's genome that affect the activity of P by expressing
CC   inactive proteins or to supplement the patients own production of P.
CC   Additionally, N may be used to produce the colon cancer-associated Ps,
CC   by inserting the nucleic acids into a host cell and culturing the cell
CC   to express the proteins. N and P can be used in the prevention, diagnosis
CC   and treatment of colorectal carcinomas and cancers. AAH37196 to AAH37204
CC   and AAB77789 represent sequences used in the exemplification of the
CC   present invention.
CC   N.B. Pages 666 to 682 and page 7053 of the sequence listing were
CC   missing at time of publication, meaning no sequences are present for
CC   SEQ ID NO:1027 to 1052, 7921 and 7922.
XX
SQ   Sequence   441 AA;


  Query Match            100.0%;  Score 580;  DB 22;  Length 441;
  Best Local Similarity  100.0%;  Pred. No. 5.3e-35;
  Matches  100;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     78 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 137

Qy     61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
          |||||||||||||||||||||||||||||||||||||||||
Db    138 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 177


RESULT  11
AAB43439
ID   AAB43439 standard; Protein; 449 AA.
XX
AC   AAB43439;
XX
DT   08-FEB-2001  (first entry)
XX
DE   Human cancer associated protein sequence SEQ ID NO:884.
XX
KW   Human; cancer associated gene; cancer antigen; detection; cancer;
KW   diagnosis; cytostatic; proliferative; vulnerary; immunomodulator;
KW   antidiabetic; antiasthmatic; antirheumatic; antiarthritic; antiviral;
KW   antiinflammatory; antithyroid; antiallergic; antibacterial; cardiant;
KW   dermatological; neuroprotective; thrombolytic; coagulant; nootropic;
KW   vasotropic; antipsoriatic; antiangiogenic; gene therapy; inflammation;
KW   immune disorder; haematopoietic cell disorder; autoimmune disorder;
KW   allergic reaction; graft versus host disease; organ rejection;
KW   haemostatic; thrombolytic; cardiovascular disorder; infection;
KW   neurological disease; drug screening.
XX
OS   Homo sapiens.
XX
PN   WO200055350-A1.
XX
PD   21-SEP-2000.
XX
PF   08-MAR-2000; 2000WO-US05882.
XX
PR   12-MAR-1999;   99US-0124270.
XX
PA   (HUMA-) HUMAN GENOME SCI INC.
XX
PI   Rosen CA,  Ruben SM;
XX
DR   WPI; 2000-587533/55.
DR   N-PSDB; AAC77648.
XX
PT   Novel isolated nucleic acids comprising sequences encoding peptides
PT   useful for treating or diagnosing e.g. cancer -
XX
PS   Claim 11; Page 1439-1441; 2352pp; English.
XX
CC   AAC77607 to AAC78448 encode the human cancer associated proteins given
CC   in AAB43398 to AAB44239. The proteins can have activities based on the
CC   tissues and cells the genes are expressed in. Example of activities
CC   include: cytostatic; proliferative; vulnerary; immunomodulator;
CC   antidiabetic; antiasthmatic; antirheumatic; antiarthritic;
CC   antiinflammatory; antithyroid; antiallergic; antibacterial; antiviral;
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CC   dermatological; neuroprotective; cardiant; thrombolytic; coagulant;
CC   nootropic; vasotropic; antipsoriatic and antiangiogenic. The
CC   polynucleotides and polypeptides can be used for preventing, treating or
CC   ameliorating medical conditions and diagnosing pathological conditions.
CC   Polynucleotides, polypeptides, antibodies, agonists and antagonists from
CC   the present invention may be used to treat immune disorders by activating
CC   or inhibiting the proliferation, differentiation or mobilisation of
CC   immune cells, to treat disorders of haematopoietic cells, autoimmune
CC   disorders, allergic reactions, graft versus host disease and organ
CC   rejection, modulate haemostatic or thrombolytic activity, modulate
CC   inflammation, cancers, cardiovascular disorders, neurological disease and
CC   bacterial or viral infections. The peptides, nucleotides, antibodies,
CC   agonists and antagonists may be also be used in drug screens. AAC78449 to
CC   AAC78457 and AAB44240 represent sequences used in the exemplification of
CC   the present invention.
XX
SQ   Sequence   449 AA;


  Query Match             100.0%;  Score 580;  DB 21;  Length 449;
  Best Local Similarity   100.0%;  Pred. No. 5.4e-35;
  Matches  100;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     78 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 137

Qy     61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
          |||||||||||||||||||||||||||||||||||||||||
Db    138 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 177


RESULT  12
AAE02712
ID   AAE02712 standard; Protein; 510 AA.
XX
AC   AAE02712;
XX
DT   06-AUG-2001  (first entry)
XX
DE   Recombinant human gelatin #1.
XX
KW   Human; recombinant gelatin; binding agent; stabilising agent; emulsifier;
KW   encapsulant; film-forming agent; moisturising agent; thickening agent;
KW   gelling agent; colloidal agent; adhesive agent; gel capsule; photography;
KW   plasma expander; colloidal volume replacement material; graft coating;
KW   medical sponge; medical plug; micro-carrier; edible composition;
KW   protein supplement; fat substitute; nutritional supplement; cell culture;
KW   edible coating; cosmetic; vaccine; therapy; arthritis; athrosis;
KW   cartilage degeneration; joint flexibility; food industry; beverage.
XX
OS   Homo sapiens.
XX
PN   WO200134646-A2.
XX
PD   17-MAY-2001.
XX
PF   10-NOV-2000; 2000WO-US30791.
XX
PR   12-NOV-1999;   99US-0165114.
PR   15-MAY-2000; 2000US-0204437.
XX
PA   (FIBR-) FIBROGEN INC.
XX
PI   Chang RC,  Kivirikko KI,  Neff TB,  Olsen DR,  Polarek JW;
XX
DR   WPI; 2001-329072/34.
XX
PT   Gelatin useful for pharmaceuticals, cosmetics and edible foods, is
PT   prepared recombinantly -
XX
PS   Disclosure; Page 130-131; 137pp; English.
XX
CC   The patent discloses recombinant human gelatin which is useful
CC   in various compositions including binding agents, encapsulants,
CC   stabilising agents, film-forming agents, moisturising agents,
CC   emulsifiers, thickening agents, gelling agents, colloidal agents,
CC   adhesive agents, pharmaceutical compositions, hard gel capsules,
CC   soft gel capsules, plasma expander, colloidal volume replacement
CC   materials, graft coatings, medical sponges, medical plugs,
CC   pharmaceutical stabilisers, micro-carriers, edible compositions,
CC   protein supplements, fat substitutes, nutritional supplements,
CC   edible coatings, photographic compositions, cosmetic compositions,
CC   industrial composition, cell culture compositions and compositions
CC   for use in the laboratory. Pharmaceutical compositions comprising
CC   recombinant gelatin are used as vaccines. They are also used to
CC   treat various joint conditions such as arthritis, athrosis and
CC   other conditions related to the degeneration of cartilage and joint
CC   flexibility. Recombinant gelatin is also used in food and beverage
CC   industries. The present sequence is a recombinant human gelatin.
XX
SQ   Sequence   510 AA;


  Query Match             100.0%;  Score 580;  DB 22;  Length 510;
  Best Local Similarity   100.0%;  Pred. No. 6e-35;
  Matches  100;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    411 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 470

Qy     61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
          |||||||||||||||||||||||||||||||||||||||||
Db    471 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 510


RESULT  13
AAB68066
ID   AAB68066 standard; Protein; 510 AA.
XX
AC   AAB68066;
XX
DT   09-JUL-2001  (first entry)
XX
DE   Amino acid sequence of a recombinant human gelatin.
XX
KW   Human; gelatin; vaccine; anaphylactic reaction.
XX
OS   Homo sapiens.
XX
PN   WO200134801-A2.
XX
PD   17-MAY-2001.
XX
PF   10-NOV-2000; 2000WO-US30843.
XX
PR   12-NOV-1999;   99US-0165114.
PR   15-MAY-2000; 2000US-0204437.
XX
PA   (FIBR-) FIBROGEN INC.
XX
PI   Chang RC,  Kivirikko KI,  Neff TB,  Olsen DR,  Polarek JW;
XX
DR   WPI; 2001-308784/32.
XX
PT   Vaccine formulations (I) comprising recombinant human gelatin, useful
PT   for vaccinating against e.g. mumps, measles, rubella, tetanus, rabies
PT   and cholera, the gelatin is non-immunogenic and confers stability at
PT   ambient temperatures -
XX
PS   Claim 11; Page 123-124; 130pp; English.
XX
CC   The present sequence represents a human recombinant gelatin polypeptide.
CC   The recombinant gelatin polypeptide is used to produce vaccine
CC   formulations of the invention. The recombinant human gelatin is
```

```
CC   non-immunogenic (therefore reducing anaphylactic reactions) and confers
CC   stability at ambient temperatures. The vaccine formulation comprises a
CC   vaccine formulated for the prevention of a disease selected from vaccinia
CC   virus (small pox), polio virus (Salk and Sabin), mumps, measles, rubella,
CC   diphtheria, tetanus, Varicella-Zoster (chicken pox/shingles), pertussis
CC   (whooping cough), Bacille Calmette-Geurin (BCG, tuberculosis),
CC   haemophillus influenzae meningitis, rabies, cholera, Japanese
CC   encephalitis virus, salmonella typhi, shigella, hepatitis A and B,
CC   adenovirus, yellow fever, foot and mouth disease, herpes simplex virus,
CC   respiratory syncytial virus, rotavirus, Dengue, West Nile virus, turkey
CC   herpes virus (Marek's disease), influenza and/or anthrax.
XX
SQ   Sequence   510 AA;


  Query Match             100.0%;  Score 580;  DB 22;  Length 510;
  Best Local Similarity   100.0%;  Pred. No. 6e-35;
  Matches  100;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    411 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 470

Qy     61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
          |||||||||||||||||||||||||||||||||||||||||
Db    471 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 510


RESULT  14
AAE02718
ID   AAE02718 standard; Protein; 662 AA.
XX
AC   AAE02718;
XX
DT   06-AUG-2001  (first entry)
XX
DE   Human alpha1 (I) type I collagen helical domain (residues 531-1192).
XX
KW   Human; recombinant gelatin; binding agent; stabilising agent; emulsifier;
KW   encapsulant; film-forming agent; moisturising agent; thickening agent;
KW   gelling agent; colloidal agent; adhesive agent; gel capsule; photography;
KW   plasma expander; colloidal volume replacement material; graft coating;
KW   medical sponge; medical plug; micro-carrier; edible composition;
KW   protein supplement; fat substitute; nutritional supplement; cell culture;
KW   edible coating; cosmetic; vaccine; therapy; arthritis; athrosis;
KW   cartilage degeneration; joint flexibility; food industry; beverage;
KW   alpha1 (I) type I collagen.
XX
OS   Homo sapiens.
XX
PN   WO200134646-A2.
XX
PD   17-MAY-2001.
XX
PF   10-NOV-2000; 2000WO-US30791.
XX
PR   12-NOV-1999;   99US-0165114.
PR   15-MAY-2000; 2000US-0204437.
XX
PA   (FIBR-) FIBROGEN INC.
XX
PI   Chang RC,  Kivirikko KI,  Neff TB,  Olsen DR,  Polarek JW;
XX
DR   WPI; 2001-329072/34.
XX
PT   Gelatin useful for pharmaceuticals, cosmetics and edible foods, is
PT   prepared recombinantly -
XX
PS   Claim 21; Page 135-137; 137pp; English.
XX
CC   The patent discloses recombinant human gelatin which is useful
CC   in various compositions including binding agents, encapsulants,
CC   stabilising agents, film-forming agents, moisturising agents,
CC   emulsifiers, thickening agents, gelling agents, colloidal agents,
CC   adhesive agents, pharmaceutical compositions, hard gel capsules,
CC   soft gel capsules, plasma expander, colloidal volume replacement
CC   materials, graft coatings, medical sponges, medical plugs,
CC   pharmaceutical stabilisers, micro-carriers, edible compositions,
CC   protein supplements, fat substitutes, nutritional supplements,
CC   edible coatings, photographic compositions, cosmetic compositions,
CC   industrial composition, cell culture compositions and compositions
CC   for use in the laboratory. Pharmaceutical compositions comprising
CC   recombinant gelatin are used as vaccines. They are also used to
CC   treat various joint conditions such as arthritis, athrosis and
CC   other conditions related to the degeneration of cartilage and joint
CC   flexibility. Recombinant gelatin is also used in food and beverage
CC   industries. The present sequence is human alpha1 (I) type I collagen
CC   helical domain (residues 531-1192). This sequence is a recombinant
CC   gelatin.
XX
SQ   Sequence   662 AA;


  Query Match             100.0%;  Score 580;  DB 22;  Length 662;
  Best Local Similarity   100.0%;  Pred. No. 7.4e-35;
  Matches  100;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    563 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 622

Qy     61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
          |||||||||||||||||||||||||||||||||||||||||
Db    623 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 662


RESULT  15
AAB68072
ID   AAB68072 standard; Protein; 662 AA.
XX
AC   AAB68072;
XX
DT   09-JUL-2001  (first entry)
XX
DE   Amino acid sequence of a recombinant human gelatin.
XX
KW   Human; gelatin; vaccine; anaphylactic reaction.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 53
FT                   /note= "this residue is given as unknown as it is
FT                         illegible in the specification"
XX
PN   WO200134801-A2.
XX
PD   17-MAY-2001.
XX
PF   10-NOV-2000; 2000WO-US30843.
XX
PR   12-NOV-1999;   99US-0165114.
PR   15-MAY-2000; 2000US-0204437.
XX
PA   (FIBR-) FIBROGEN INC.
XX
PI   Chang RC,  Kivirikko KI,  Neff TB,  Olsen DR,  Polarek JW;
XX
DR   WPI; 2001-308784/32.
XX
PT   Vaccine formulations (I) comprising recombinant human gelatin, useful
PT   for vaccinating against e.g. mumps, measles, rubella, tetanus, rabies
PT   and cholera, the gelatin is non-immunogenic and confers stability at
PT   ambient temperatures -
XX
PS   Claim 11; Page 128-130; 130pp; English.
```

```
XX
CC   The present sequence represents a human recombinant gelatin polypeptide.
CC   The recombinant gelatin polypeptide is used to produce vaccine
CC   formulations of the invention. The recombinant human gelatin is
CC   non-immunogenic (therefore reducing anaphylactic reactions) and confers
CC   stability at ambient temperatures. The vaccine formulation comprises a
CC   vaccine formulated for the prevention of a disease selected from vaccinia
CC   virus (small pox), polio virus (Salk and Sabin), mumps, measles, rubella,
CC   diphtheria, tetanus, Varicella-Zoster (chicken pox/shingles), pertussis
CC   (whooping cough), Bacille Calmette-Geurin (BCG, tuberculosis),
CC   haemophillus influenzae meningitis, rabies, cholera, Japanese
CC   encephalitis virus, salmonella typhi, shigella, hepatitis A and B,
CC   adenovirus, yellow fever, foot and mouth disease, herpes simplex virus,
CC   respiratory syncytial virus, rotavirus, Dengue, West Nile virus, turkey
CC   herpes virus (Marek's disease), influenza and/or anthrax.
XX
SQ   Sequence   662 AA;


  Query Match          100.0%;  Score 580;  DB 22;  Length 662;
  Best Local Similarity   100.0%;  Pred. No. 7.4e-35;
  Matches  100;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     563 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 622

Qy      61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
           |||||||||||||||||||||||||||||||||||||||||
Db     623 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 662


RESULT  16
AAY84541
ID   AAY84541 standard; Protein; 1057 AA.
XX
AC   AAY84541;
XX
DT   25-JUL-2000  (first entry)
XX
DE   Amino acid sequence of a human collagen 1 (alpha1) protein.
XX
KW   Extracellular matrix protein; self aggregation; hydroxylated proline;
KW   trans-4-hydroxyproline; 3-hydroxyproline; recombinant protein production;
KW   collagen; fibrinogen; fibronectin; post translational hydroxylation.
XX
OS   Homo sapiens.
XX
PN   EP992586-A2.
XX
PD   12-APR-2000.
XX
PF   07-OCT-1999;   99EP-0119184.
XX
PR   09-OCT-1998;   98US-0169768.
XX
PA   (USSU ) US SURGICAL CORP.
XX
PI   Gruskin EA,  Buechter DD,  Zhang G,  Connolly K;
XX
DR   WPI; 2000-259138/23.
DR   N-PSDB; AAA12502.
XX
PT   Production of extracellular matrix proteins containing
PT   4-trans-hydroxyproline results in native self aggregating proteins,
PT   useful on medical implants -
XX
PS   Disclosure; Fig 27A-E; 260pp; English.
XX
CC   The specification describes a method for producing an extracellular
CC   matrix protein or its fragment. The extracellular matrix protein is
CC   capable of self aggregating in a cell which does not ordinarily
CC   hydroxylated prolines. The method comprises optimising a nucleic acid
CC   sequence for expression in the cell by substitution of codons preferred
CC   by that cell for naturally occurring codons not preferred by the cell;
CC   incorporating the nucleic acid sequence into the cell; and contacting
CC   the cell with a hypertonic growth medium containing at least one amino
CC   acid, selected from the group consisting of trans-4-hydroxyproline and
CC   3-hydroxyproline to allow at least one of the amino acids to be
CC   assimilated into the cell and incorporated into the extracellular matrix
CC   protein. The method may be used to make host cells assimilate and
CC   incorporate trans-4-hydroxyproline into proteins. This is especially
CC   useful in the recombinant production of proteins such as collagen,
CC   fibrinogen and fibronectin whose ability to self aggregate and produce
CC   functional proteins depends on the post translational hydroxylation of
CC   proline. The method is also useful in studying the structure and function
CC   of polypeptides which do not normally contain trans-4-hydroxyproline.
CC   The present sequence represents a human collagen 1 (alpha1) protein,
CC   which may be produced using the method of the invention.
XX
SQ   Sequence   1057 AA;


  Query Match          100.0%;  Score 580;  DB 21;  Length 1057;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-34;
  Matches  100;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     932 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 991

Qy      61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
           |||||||||||||||||||||||||||||||||||||||||
Db     992 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 1031


RESULT  17
AAY84544
ID   AAY84544 standard; Protein; 1057 AA.
XX
AC   AAY84544;
XX
DT   25-JUL-2000  (first entry)
XX
DE   A human collagen 1 (alpha1) protein helical region.
XX
KW   Extracellular matrix protein; self aggregation; hydroxylated proline;
KW   trans-4-hydroxyproline; 3-hydroxyproline; recombinant protein production;
KW   collagen; fibrinogen; fibronectin; post translational hydroxylation.
XX
OS   Homo sapiens.
XX
PN   EP992586-A2.
XX
PD   12-APR-2000.
XX
PF   07-OCT-1999;   99EP-0119184.
XX
PR   09-OCT-1998;   98US-0169768.
XX
PA   (USSU ) US SURGICAL CORP.
XX
PI   Gruskin EA,  Buechter DD,  Zhang G,  Connolly K;
XX
DR   WPI; 2000-259138/23.
DR   N-PSDB; AAA12503.
XX
PT   Production of extracellular matrix proteins containing
PT   4-trans-hydroxyproline results in native self aggregating proteins,
PT   useful on medical implants -
XX
PS   Example 10; Fig 39A-E; 260pp; English.
XX
CC   The specification describes a method for producing an extracellular
CC   matrix protein or its fragment. The extracellular matrix protein is
CC   capable of self aggregating in a cell which does not ordinarily
```

```
CC   hydroxylated prolines. The method comprises optimising a nucleic acid
CC   sequence for expression in the cell by substitution of codons preferred
CC   by that cell for naturally occurring codons not preferred by the cell;
CC   incorporating the nucleic acid sequence into the cell; and contacting
CC   the cell with a hypertonic growth medium containing at least one amino
CC   acid, selected from the group consisting of trans-4-hydroxyproline and
CC   3-hydroxyproline to allow at least one of the amino acids to be
CC   assimilated into the cell and incorporated into the extracellular matrix
CC   protein. The method may be used to make host cells assimilate and
CC   incorporate trans-4-hydroxyproline into proteins. This is especially
CC   useful in the recombinant production of proteins such as collagen,
CC   fibrinogen and fibronectin whose ability to self aggregate and produce
CC   functional proteins depends on the post translational hydroxylation of
CC   proline. The method is also useful in studying the structure and function
CC   of polypeptides which do not normally contain trans-4-hydroxyproline.
CC   The present sequence represents human collagen 1 (alpha1) helical region,
CC   which may be produced using the method of the invention.
XX
SQ   Sequence   1057 AA;


  Query Match             100.0%;  Score 580;  DB 21;  Length 1057;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-34;
  Matches  100;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    932 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 991

Qy     61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
          ||||||||||||||||||||||||||||||||||||||||
Db    992 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 1031


RESULT  18
AAY84403
ID   AAY84403 standard; Protein; 1058 AA.
XX
AC   AAY84403;
XX
DT   12-JUL-2000  (first entry)
XX
DE   Amino acid sequence of human type 1 (alpha1) collagen polypeptide.
XX
KW   Alpha1 collagen; 3,4-dehydro-L-proline; epoxidation; 3,4-epoxyproline;
KW   collagen; mussel adhesive protein; bioadhesive.
XX
OS   Homo sapiens.
XX
PN   WO200014201-A1.
XX
PD   16-MAR-2000.
XX
PF   07-SEP-1999;   99WO-US20462.
XX
PR   09-SEP-1998;   98US-0099652.
XX
PA   (USSU ) US SURGICAL CORP.
PA   (PAOL/) PAOLELLA D N.
PA   (GRUS/) GRUSKIN E A.
PA   (BUEC/) BUECHTER D D.
XX
PI   Paolella DN,  Gruskin EA,  Buechter DD;
XX
DR   WPI; 2000-271051/23.
DR   N-PSDB; AAZ99843.
XX
PT   Incorporating non-natural amino acid into polypeptide, useful e.g. for
PT   production of bioadhesives, by epoxidation or substitution of
PT   dehydroproline residues  -
XX
PS   Disclosure; Fig 6; 66pp; English.
XX
CC   The present sequence represents a human type 1 (alpha1) collagen protein.
CC   Peptides derived from the protien were used to demonstrate incorporation
CC   of 3,4-dehydro-L-proline into the peptide, using the method of the
CC   invention. The specification describes a method for the incorporation
CC   of non-natural amino acid into a polypeptide. The method comprises
CC   reacting at least one 3,4-dehydroproline residue in the polypeptide
CC   with an epoxidation reagent from a polypeptide containing at least
CC   one 3,4-epoxyproline residue. The method is used for studying the
CC   effects of non-natural amino acids on structure and function of
CC   polypeptides. The method is also useful for commercial production of
CC   collagen or mussel adhesive proteins (which are useful as bioadhesives),
CC   and for incorporating a wide variety of groups, including therapeutic
CC   ligands and biological probes, into polypeptides.
XX
SQ   Sequence   1058 AA;


  Query Match             100.0%;  Score 580;  DB 21;  Length 1058;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-34;
  Matches  100;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    933 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 992

Qy     61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
          ||||||||||||||||||||||||||||||||||||||||
Db    993 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 1032


RESULT  19
AAR89472
ID   AAR89472 standard; Protein; 1107 AA.
XX
AC   AAR89472;
XX
DT   01-OCT-1996  (first entry)
XX
DE   Collagen/decorin(aa46-93) fusion protein.
XX
KW   Transforming growth factor; TGF-beta-1; collagen IA; osteogenesis;
KW   bone formation; tissue repair; fusion protein.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Domain          1..1057
FT                   /label= Collagen-IA
FT                   /note= "collagen IA alpha-helical domain"
FT   Peptide         1058..1059
FT                   /label= Linker_peptide
FT   Domain          1060..1107
FT                   /label= Decorin
FT                   /note= "amino acids P46 to G93 of mature
FT                    decorin"
FT   Misc-difference 887
FT                   /note= "unidentified amino acid"
FT   Misc-difference 890
FT                   /note= "unidentified amino acid"
XX
PN   CA2151547-A.
XX
PD   11-DEC-1995.
XX
PF   12-JUN-1995;   95CA-2151547.
XX
PR   10-JUN-1994;   94US-0259263.
XX
PA   (USSU ) US SURGICAL CORP.
XX
PI   Espino P,  Gruskin EA;
XX
DR   WPI; 1996-140144/15.
```

```
DR   N-PSDB; AAT16518.
XX
PT   Chimaeric DNA encoding protein contg. extracellular matrix protein
PT   domain  - and cellular regulatory factor domain, partic. useful as
PT   osteogenic agents, also related vectors, transformed cells and
PT   chimaeric proteins.
XX
PS   Disclosure; Fig 8; 59pp; English.
XX
CC   A fusion protein (AAR89472) comprises the alpha-helical region of
CC   human collagen I(a) linked to amino acids 46-93 of human mature
CC   dermatan sulphate proteoglycan (decorin).  It can be expressed in
CC   Escherichia coli transformants carrying a vector incorporating a
CC   chimeric gene (AAT16518) coding for the fusion.  The decorin binds to
CC   type I collagen and thus affects Elbril formation.  It inhibits
CC   the cell attachment-promoting activity of collagen and fibrinogen
CC   by binding to such molecules near their cell binding sites.  The
CC   collagen moiety provides an integral substratum or scaffolding for
CC   the decorin.  The fusion protein acts to reduce scarring of healing
CC   tissue.
XX
SQ   Sequence   1107 AA;


  Query Match             100.0%;  Score 580;  DB 17;  Length 1107;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-34;
  Matches  100;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     932 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 991

Qy      61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
           ||||||||||||||||||||||||||||||||||||||||
Db     992 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 1031


RESULT  20
AAY84540
ID   AAY84540 standard; Protein; 1107 AA.
XX
AC   AAY84540;
XX
DT   25-JUL-2000  (first entry)
XX
DE   Amino acid sequence of a chimeric collagen 1 (alpha1)/decorin protein.
XX
KW   Extracellular matrix protein; self aggregation; hydroxylated proline;
KW   trans-4-hydroxyproline; 3-hydroxyproline; recombinant protein production;
KW   collagen; fibrinogen; fibronectin; post translational hydroxylation;
KW   decorin; chimera.
XX
OS   Chimeric - Homo sapiens.
OS   Chimeric - Unidentified.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 858
FT                   /note= "Gly encoded by GCT"
XX
PN   EP992586-A2.
XX
PD   12-APR-2000.
XX
PF   07-OCT-1999;   99EP-0119184.
XX
PR   09-OCT-1998;   98US-0169768.
XX
PA   (USSU ) US SURGICAL CORP.
XX
PI   Gruskin EA,  Buechter DD,  Zhang G,  Connolly K;
XX
DR   WPI; 2000-259138/23.
DR   N-PSDB; AAA12500.
XX
PT   Production of extracellular matrix proteins containing
PT   4-trans-hydroxyproline results in native self aggregating proteins,
PT   useful on medical implants -
XX
PS   Claim 24; Fig 18; 260pp; English.
XX
CC   The specification describes a method for producing an extracellular
CC   matrix protein or its fragment. The extracellular matrix protein is
CC   capable of self aggregating in a cell which does not ordinarily
CC   hydroxylated prolines. The method comprises optimising a nucleic acid
CC   sequence for expression in the cell by substitution of codons preferred
CC   by that cell for naturally occurring codons not preferred by the cell;
CC   incorporating the nucleic acid sequence into the cell; and contacting
CC   the cell with a hypertonic growth medium containing at least one amino
CC   acid, selected from the group consisting of trans-4-hydroxyproline and
CC   3-hydroxyproline to allow at least one of the amino acids to be
CC   assimilated into the cell and incorporated into the extracellular matrix
CC   protein. The method may be used to make host cells assimilate and
CC   incorporate trans-4-hydroxyproline into proteins. This is especially
CC   useful in the recombinant production of proteins such as collagen,
CC   fibrinogen and fibronectin whose ability to self aggregate and produce
CC   functional proteins depends on the post translational hydroxylation of
CC   proline. The method is also useful in studying the structure and function
CC   of polypeptides which do not normally contain trans-4-hydroxyproline.
CC   The present sequence represents a chimeric collagen 1 (alpha1)/decorin
CC   protein, which may be produced using the method of the invention.
XX
SQ   Sequence   1107 AA;


  Query Match             100.0%;  Score 580;  DB 21;  Length 1107;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-34;
  Matches  100;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     932 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 991

Qy      61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
           ||||||||||||||||||||||||||||||||||||||||
Db     992 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 1031


RESULT  21
AAR89469
ID   AAR89469 standard; Protein; 1169 AA.
XX
AC   AAR89469;
XX
DT   01-OCT-1996  (first entry)
XX
DE   Collagen/BMP-2B fusion protein.
XX
KW   Bone morphogenic protein 2B; BMP-2B; collagen IA; osteogenesis;
KW   fusion protein.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Domain          1..1057
FT                   /label= Collagen-IA
FT                   /note= "collagen IA alpha-helical domain"
FT   Peptide         1058..1059
FT                   /label= Linker_peptide
FT   Domain          1060..1169
FT                   /label= BMP-2B
FT                   /note= "human mature BMP-2B"
FT   Misc-difference 887
FT                   /note= "unidentified amino acid"
FT   Misc-difference 890
FT                   /note= "unidentified amino acid"
XX
```

PN CA2151547-A.
XX
PD 11-DEC-1995.
XX
PF 12-JUN-1995; 95CA-2151547.
XX
PR 10-JUN-1994; 94US-0259263.
XX
PA (USSU) US SURGICAL CORP.
XX
PI Espino P, Gruskin EA;
XX
DR WPI; 1996-140144/15.
DR N-PSDB; AAT16515.
XX
PT Chimaeric DNA encoding protein contg. extracellular matrix protein
PT domain - and cellular regulatory factor domain, partic. useful as
PT osteogenic agents, also related vectors, transformed cells and
PT chimaeric proteins.
XX
PS Disclosure; Fig 5; 59pp; English.
XX
CC A fusion protein (AAR89469) comprises the alpha-helical region of
CC human collagen I(a) linked to the human mature bone morphogenic
CC protein 2B (BMP2B). It can be expressed in Escherichia coli
CC transformants carrying a vector incorporating a chimeric gene
CC (AAT16515) coding for the fusion. The BMP moiety induces
CC osteogenesis, while the collagen moiety provides an integral
CC substratum or scaffolding for the BMP and cells involved in
CC reconstruction and growth. The fusion protein provides sustained
CC release and delivery of BMP to a target tissue.
XX
SQ Sequence 1169 AA;

Query Match 100.0%; Score 580; DB 17; Length 1169;
Best Local Similarity 100.0%; Pred. No. 1.2e-34;
Matches 100; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
Db 932 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 991

Qy 61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
Db 992 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 1031

RESULT 22
AAY84537
ID AAY84537 standard; Protein; 1169 AA.
XX
AC AAY84537;
XX
DT 25-JUL-2000 (first entry)
XX
DE Amino acid sequence of a chimeric collagen 1 (alpha1)/BMP-2B protein.
XX
KW Extracellular matrix protein; self aggregation; hydroxylated proline;
KW trans-4-hydroxyproline; 3-hydroxyproline; recombinant protein production;
KW collagen; fibrinogen; fibronectin; post translational hydroxylation; ss.
KW bone morphogenic protein; BMP-2B; chimera.
XX
OS Chimeric - Homo sapiens.
OS Chimeric - Unidentified.
XX
FH Key Location/Qualifiers
FT Misc-difference 677
FT /note= "Ala encoded by G"
FT Misc-difference 887
FT /note= "unspecified amino acid encoded by CT"
FT Misc-difference 890
FT /note= "unspecified amino acid encoded by CT"
XX
PN EP992586-A2.
XX
PD 12-APR-2000.
XX
PF 07-OCT-1999; 99EP-0119184.
XX
PR 09-OCT-1998; 98US-0169768.
XX
PA (USSU) US SURGICAL CORP.
XX
PI Gruskin EA, Buechter DD, Zhang G, Connolly K;
XX
DR WPI; 2000-259138/23.
DR N-PSDB; AAA12497.
XX
PT Production of extracellular matrix proteins containing
PT 4-trans-hydroxyproline results in native self aggregating proteins,
PT useful on medical implants -
XX
PS Claim 22; Fig 13; 260pp; English.
XX
CC The specification describes a method for producing an extracellular
CC matrix protein or its fragment. The extracellular matrix protein is
CC capable of self aggregating in a cell which does not ordinarily
CC hydroxylated prolines. The method comprises optimising a nucleic acid
CC sequence for expression in the cell by substitution of codons preferred
CC by that cell for naturally occurring codons not preferred by the cell;
CC incorporating the nucleic acid sequence into the cell; and contacting
CC the cell with a hypertonic growth medium containing at least one amino
CC acid, selected from the group consisting of trans-4-hydroxyproline and
CC 3-hydroxyproline to allow at least one of the amino acids to be
CC assimilated into the cell and incorporated into the extracellular matrix
CC protein. The method may be used to make host cells assimilate and
CC incorporate trans-4-hydroxyproline into proteins. This is especially
CC useful in the recombinant production of proteins such as collagen,
CC fibrinogen and fibronectin whose ability to self aggregate and produce
CC functional proteins depends on the post translational hydroxylation of
CC proline. The method is also useful in studying the structure and function
CC of polypeptides which do not normally contain trans-4-hydroxyproline.
CC The present sequence represents a chimeric collagen 1 (alphal)/bone
CC morphogenic protein-2B (bmp-2b) protein, which may be produced using the
CC method of the invention.
XX
SQ Sequence 1169 AA;

Query Match 100.0%; Score 580; DB 21; Length 1169;
Best Local Similarity 100.0%; Pred. No. 1.2e-34;
Matches 100; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
Db 932 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 991

Qy 61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
Db 992 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 1031

RESULT 23
AAR89470
ID AAR89470 standard; Protein; 1171 AA.
XX
AC AAR89470;
XX
DT 01-OCT-1996 (first entry)
XX
DE Collagen/TGF-beta-1 fusion protein.
XX
KW Transforming growth factor; TGF-beta-1; collagen IA; osteogenesis;
KW bone formation; tissue repair; fusion protein.
XX

```
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Domain          1..1057
FT                   /label= Collagen-IA
FT                   /note= "collagen IA alpha-helical domain"
FT   Peptide         1058..1059
FT                   /label= Linker_peptide
FT   Domain          1060..1171
FT                   /label= TGF-beta-1
FT                   /note= "human mature TFF-beta-1"
FT   Misc-difference 887
FT                   /note= "unidentified amino acid"
FT   Misc-difference 890
FT                   /note= "unidentified amino acid"
XX
PN   CA2151547-A.
XX
PD   11-DEC-1995.
XX
PF   12-JUN-1995;   95CA-2151547.
XX
PR   10-JUN-1994;   94US-0259263.
XX
PA   (USSU ) US SURGICAL CORP.
XX
PI   Espino P,  Gruskin EA;
XX
DR   WPI; 1996-140144/15.
DR   N-PSDB; AAT16516.
XX
PT   Chimaeric DNA encoding protein contg. extracellular matrix protein
PT   domain  - and cellular regulatory factor domain, partic. useful as
PT   osteogenic agents, also related vectors, transformed cells and
PT   chimaeric proteins.
XX
PS   Disclosure; Fig 6; 59pp; English.
XX
CC   A fusion protein (AAR89470) comprises the alpha-helical region of
CC   human collagen I(a) linked to the human mature transforming
CC   growth factor beta-1 (TGF-beta-1).  It can be expressed in
CC   Escherichia coli transformants carrying a vector incorporating a
CC   chimeric gene (AAT16516) coding for the fusion.  The TGF-beta-
CC   moiety increases efficacy of the body's normal soft tissue
CC   repair response and also induces osteogenesis.  The collagen
CC   moiety provides an integral substratum or scaffolding for the
CC   TGF and cells involved in reconstruction and growth.  The fusion
CC   protein provides sustained release and delivery of TGF-beta-1
CC   to a target tissue.
XX
SQ   Sequence   1171 AA;


  Query Match             100.0%;  Score 580;  DB 17;  Length 1171;
  Best Local Similarity   100.0%;  Pred. No. 1.2e-34;
  Matches  100;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     932 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 991

Qy      61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
           ||||||||||||||||||||||||||||||||||||||||
Db     992 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 1031


RESULT  24
AAY84538
ID   AAY84538 standard; Protein; 1171 AA.
XX
AC   AAY84538;
XX
DT   25-JUL-2000  (first entry)
XX
DE   A chimeric collagen 1 (alpha1)/TGF-beta1 protein.
XX
KW   Extracellular matrix protein; self aggregation; hydroxylated proline;
KW   trans-4-hydroxyproline; 3-hydroxyproline; recombinant protein production;
KW   collagen; fibrinogen; fibronectin; post translational hydroxylation; ss.
KW   transforming growth factor-beta1; TGF-beta1; chimera.
XX
OS   Chimeric - Homo sapiens.
OS   Chimeric - Unidentified.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 858
FT                   /note= "Gly encoded by GCT"
XX
PN   EP992586-A2.
XX
PD   12-APR-2000.
XX
PF   07-OCT-1999;   99EP-0119184.
XX
PR   09-OCT-1998;   98US-0169768.
XX
PA   (USSU ) US SURGICAL CORP.
XX
PI   Gruskin EA,  Buechter DD,  Zhang G,  Connolly K;
XX
DR   WPI; 2000-259138/23.
DR   N-PSDB; AAA12498.
XX
PT   Production of extracellular matrix proteins containing
PT   4-trans-hydroxyproline results in native self aggregating proteins,
PT   useful on medical implants -
XX
PS   Claim 23; Fig 15; 260pp; English.
XX
CC   The specification describes a method for producing an extracellular
CC   matrix protein or its fragment. The extracellular matrix protein is
CC   capable of self aggregating in a cell which does not ordinarily
CC   hydroxylated prolines. The method comprises optimising a nucleic acid
CC   sequence for expression in the cell by substitution of codons preferred
CC   by that cell for naturally occurring codons not preferred by the cell;
CC   incorporating the nucleic acid sequence into the cell; and contacting
CC   the cell with a hypertonic growth medium containing at least one amino
CC   acid, selected from the group consisting of trans-4-hydroxyproline and
CC   3-hydroxyproline to allow at least one of the amino acids to be
CC   assimilated into the cell and incorporated into the extracellular matrix
CC   protein. The method may be used to make host cells assimilate and
CC   incorporate trans-4-hydroxyproline into proteins. This is especially
CC   useful in the recombinant production of proteins such as collagen,
CC   fibrinogen and fibronectin whose ability to self aggregate and produce
CC   functional proteins depends on the post translational hydroxylation of
CC   proline. The method is also useful in studying the structure and function
CC   of polypeptides which do not normally contain trans-4-hydroxyproline.
CC   The present sequence represents chimeric collagen 1 (alpha1)/transforming
CC   growth factor-beta1 (TGF-beta1) protein, which may be produced using the
CC   method of the invention.
XX
SQ   Sequence   1171 AA;


  Query Match             100.0%;  Score 580;  DB 21;  Length 1171;
  Best Local Similarity   100.0%;  Pred. No. 1.2e-34;
  Matches  100;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     932 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 991

Qy      61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
           ||||||||||||||||||||||||||||||||||||||||
Db     992 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 1031
```

```
RESULT  25
AAR71701
ID   AAR71701 standard; protein; 1341 AA.
XX
AC   AAR71701;
XX
DT   17-OCT-1995  (first entry)
XX
DE   Collagen alpha 1 (I) chain precursor.
XX
KW   Collagen; antibody; immunoassay; metabolism; diagnosis; monitoring;
KW   disorder; osteoporosis; metastatic progression; Paget's disease;
KW   hyperthyroidism; bone; resorption; rheumatoid arthritis;
KW   osteoarthritis; vasculitis syndrome.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 2028
FT                   /note= "Unidentified amino acid."
XX
PN   WO9508115-A.
XX
PD   23-MAR-1995.
XX
PF   19-SEP-1994;   94WO-DK00348.
XX
PR   17-SEP-1993;   93DK-0001040.
XX
PA   (OSTE-) OSTEOMETER AS.
XX
PI   Bonde M,  Qvist P;
XX
DR   WPI; 1995-131456/17.
XX
PT   Assaying collagen fragments in body fluid by immunoassay - using
PT   antibodies raised against synthetic peptide(s) contg. potential
PT   crosslinking sites, to diagnose and monitor disorders of collagen
PT   metabolism, e.g. osteoporosis.
XX
PS   Disclosure (Appendix A); Page 49; 87pp; English.
XX
CC   Determination of collagen fragments in body fluids can be achieved
CC   by immunoassay using antibodies directed against synthetic peptides
CC   derived from collagen which contain sites of potential crosslinking.
CC   The method is used to diagnose and monitor treatment of disorders of
CC   collagen metabolism (degredation of type I collagen may indicate
CC   osteoporosis, metastatic progression, Paget's disease,
CC   hyperthyroidism or other conditions involving excessive bone
CC   resorption; degredation of type II collagen may indicate rheumatoid
CC   arthritis or osteoarthritis; and of type III collagen, vaculitis
CC   syndrome). The method can also be used to assess the toxicity of a
CC   compound and to test drugs for their effect on collagen metabolism.
XX
SQ   Sequence   1341 AA;

  Query Match             100.0%;  Score 580;  DB 16;  Length 1341;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-34;
  Matches  100;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     970 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 1029

Qy      61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
           ||||||||||||||||||||||||||||||||||||||||
Db   1030 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 1069


RESULT  26
AAY96122
ID   AAY96122 standard; Peptide; 1341 AA.
XX
AC   AAY96122;
XX
DT   19-DEC-2000  (first entry)
XX
DE   Collagen type I alpha-1.
XX
KW   Collagen type I; osteoporosis; bone resportion; Paget's disease;
KW   hyperparathyroidism; metastasis; assay; diagnosis.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 924
FT                   /note= "unidentified residue"
FT   Misc-difference 927
FT                   /note= "unidentified residue"
FT   Misc-difference 1127
FT                   /note= "unidentified residue"
FT   Misc-difference 1268
FT                   /note= "unidentified residue"
XX
PN   US6110689-A.
XX
PD   29-AUG-2000.
XX
PF   04-NOV-1997;   97US-0963825.
XX
PR   21-JAN-1994;   94US-0187319.
XX
PA   (OSTE-) OSTEOMETER AS.
XX
PI   Bonde M,  Qvist P;
XX
DR   WPI; 2000-586349/55.
XX
PT   Assaying type I collagen fragments for diagnosing osteoporosis in
PT   postmenopausal woman, involves contacting body fluid with synthetic
PT   collagen peptide and antibody and quantifying by competitive binding
PT   assay -
XX
PS   Disclosure; Column 23-37; 41pp; English.
XX
CC   The present sequence is that of human type I collagen alpha-1.
CC   The invention is based on the discovery of the presence of
CC   particular collagen fragments in body fluids of patients compared
CC   with those of healthy subjects. These fragments are generated
CC   upon collagen degradation and are partly characterised by the
CC   presence of potential sites for crosslinking. A method for
CC   assaying collagen fragments in a body fluid sample is based on the
CC   competitive binding to immunological binding partners of collagen
CC   fragments in the sample and of synthetic peptides derived from
CC   collagen and containing crosslinkable sites (see AAY96105-11). When
CC   considering the degradation of type I collagen, the assay can be
CC   used as a means of identifying excessive bone resportion, indicating
CC   the presence of osteoporosis or the metastatic progress of a
CC   malignancy. Other conditions characterized by excessive bone
CC   resportion include Paget's disease and hyperparathyroidism.
XX
SQ   Sequence   1341 AA;

  Query Match             100.0%;  Score 580;  DB 21;  Length 1341;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-34;
  Matches  100;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     969 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 1028

Qy      61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
           ||||||||||||||||||||||||||||||||||||||||
```

```
Db   1029 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 1068


RESULT  27
AAR89471
ID   AAR89471 standard; Protein; 1388 AA.
XX
AC   AAR89471;
XX
DT   01-OCT-1996  (first entry)
XX
DE   Collagen/decorin fusion protein.
XX
KW   Transforming growth factor; TGF-beta-1; collagen IA; osteogenesis;
KW   bone formation; tissue repair; fusion protein.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Domain          1..1057
FT                   /label= Collagen-IA
FT                   /note= "collagen IA alpha-helical domain"
FT   Peptide         1058..1059
FT                   /label= Linker_peptide
FT   Domain          1060..1388
FT                   /label= Decorin
FT   Misc-difference 887
FT                   /note= "unidentified amino acid"
FT   Misc-difference 890
FT                   /note= "unidentified amino acid"
XX
PN   CA2151547-A.
XX
PD   11-DEC-1995.
XX
PF   12-JUN-1995;   95CA-2151547.
XX
PR   10-JUN-1994;   94US-0259263.
XX
PA   (USSU ) US SURGICAL CORP.
XX
PI   Espino P,  Gruskin EA;
XX
DR   WPI; 1996-140144/15.
DR   N-PSDB; AAT16517.
XX
PT   Chimaeric DNA encoding protein contg. extracellular matrix protein
PT   domain  - and cellular regulatory factor domain, partic. useful as
PT   osteogenic agents, also related vectors, transformed cells and
PT   chimaeric proteins.
XX
PS   Disclosure; Fig 7; 59pp; English.
XX
CC   A fusion protein (AAR89471) comprises the alpha-helical region of
CC   human collagen I(a) linked to human dermatan sulphate proteoglycan
CC   (decorin).  It can be expressed in Escherichia coli transformants
CC   carrying a vector incorporating a chimeric gene (AAT16517) coding for
CC   the fusion.  The decorin binds to type I collagen and thus affects
CC   Elbril formation.  It inhibits the cell attachment-promoting
CC   activity of collagen and fibrinogen by binding to such molecules
CC   near their cell binding sites.  The collagen moiety provides an
CC   integral substratum or scaffolding for the decorin.  The fusion
CC   protein acts to reduce scarring of healing tissue.
XX
SQ   Sequence   1388 AA;


  Query Match             100.0%;  Score 580;  DB 17;  Length 1388;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-34;
  Matches  100;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||

Db    932 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 991

Qy      61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
           ||||||||||||||||||||||||||||||||||||||||
Db    992 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 1031


RESULT  28
AAY84539
ID   AAY84539 standard; Protein; 1388 AA.
XX
AC   AAY84539;
XX
DT   25-JUL-2000  (first entry)
XX
DE   Amino acid sequence of a chimeric collagen 1 (alpha1)/decorin protein.
XX
KW   Extracellular matrix protein; self aggregation; hydroxylated proline;
KW   trans-4-hydroxyproline; 3-hydroxyproline; recombinant protein production;
KW   collagen; fibrinogen; fibronectin; post translational hydroxylation;
KW   decorin; chimera.
XX
OS   Chimeric - Homo sapiens.
OS   Chimeric - Unidentified.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 87
FT                   /note= "Gly encoded by GCG"
FT   Misc-difference 305
FT                   /note= "Glu encoded by CAA"
FT   Misc-difference 363
FT                   /note= "Gly encoded by CGT"
FT   Misc-difference 378
FT                   /note= "Glu encoded by GGT"
FT   Misc-difference 429
FT                   /note= "Gly encoded by CGA"
FT   Misc-difference 444
FT                   /note= "Gly encoded by CGC"
FT   Misc-difference 543
FT                   /note= "Gly encoded by GCC"
FT   Misc-difference 546
FT                   /note= "Gly encoded by GCT"
FT   Misc-difference 606
FT                   /note= "Gly encoded by GAC"
FT   Misc-difference 702
FT                   /note= "Gly encoded by CGT"
FT   Misc-difference 815
FT                   /note= "Pro encoded by CTT"
FT   Misc-difference 858
FT                   /note= "Gly encoded by GCT"
FT   Misc-difference 1066
FT                   /note= "Gly encoded by GCC"
XX
PN   EP992586-A2.
XX
PD   12-APR-2000.
XX
PF   07-OCT-1999;   99EP-0119184.
XX
PR   09-OCT-1998;   98US-0169768.
XX
PA   (USSU ) US SURGICAL CORP.
XX
PI   Gruskin EA,  Buechter DD,  Zhang G,  Connolly K;
XX
DR   WPI; 2000-259138/23.
DR   N-PSDB; AAA12499.
XX
PT   Production of extracellular matrix proteins containing
PT   4-trans-hydroxyproline results in native self aggregating proteins,
PT   useful on medical implants -
XX
PS   Claim 25; Fig 17A-B; 260pp; English.
```

```
XX
CC   The specification describes a method for producing an extracellular
CC   matrix protein or its fragment. The extracellular matrix protein is
CC   capable of self aggregating in a cell which does not ordinarily
CC   hydroxylated prolines. The method comprises optimising a nucleic acid
CC   sequence for expression in the cell by substitution of codons preferred
CC   by that cell for naturally occurring codons not preferred by the cell;
CC   incorporating the nucleic acid sequence into the cell; and contacting
CC   the cell with a hypertonic growth medium containing at least one amino
CC   acid, selected from the group consisting of trans-4-hydroxyproline and
CC   3-hydroxyproline to allow at least one of the amino acids to be
CC   assimilated into the cell and incorporated into the extracellular matrix
CC   protein. The method may be used to make host cells assimilate and
CC   incorporate trans-4-hydroxyproline into proteins. This is especially
CC   useful in the recombinant production of proteins such as collagen,
CC   fibrinogen and fibronectin whose ability to self aggregate and produce
CC   functional proteins depends on the post translational hydroxylation of
CC   proline. The method is also useful in studying the structure and function
CC   of polypeptides which do not normally contain trans-4-hydroxyproline.
CC   The present sequence represents a chimeric collagen 1 (alphal)/decorin
CC   protein, which may be produced using the method of the invention.
XX
SQ   Sequence   1388 AA;


  Query Match             100.0%;  Score 580;  DB 21;  Length 1388;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-34;
  Matches  100;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     932 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 991

Qy      61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
           |||||||||||||||||||||||||||||||||||||||||
Db     992 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 1031


RESULT  29
AAE02535
ID   AAE02535 standard; Protein; 1449 AA.
XX
AC   AAE02535;
XX
DT   10-AUG-2001  (first entry)
XX
DE   Porcine alphal(I) collagen.
XX
KW   Porcine; alphal(I) collagen; gelatin; cytostatic; viral infection;
KW   pharmaceutical; food industry; cosmetic; autoimmune disorder; vaccine;
KW   medical; arterial sealant; bone graft; dermal implant; haemostat; cancer;
KW   rheumatoid arthritis; beverage; photographic application.
XX
OS   Sus scrofa.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 829..830
FT                   /note= "Encoded by ggcgaacctggtgatgctggtgctaaaggcgatg
FT                   ctggtccccccggccctgctgga"
XX
PN   WO200134647-A2.
XX
PD   17-MAY-2001.
XX
PF   10-NOV-2000; 2000WO-US30792.
XX
PR   12-NOV-1999;   99US-0439058.
PR   10-NOV-2000; 2000US-0439058.
XX
PA   (FIBR-) FIBROGEN INC.
XX
PI   Bell MP,  Neff TB,  Polarek JW,  Seeley TW;
XX
DR   WPI; 2001-335911/35.
DR   N-PSDB; AAD06576.
XX
PT   Novel isolated and purified bovine or porcine collagens and gelatins
PT   useful in medical, pharmaceutical, food and cosmetic industries, as
PT   vaccine, and for treating autoimmune disorders, infections and cancer
PT   -
XX
PS   Example 3; Fig 8; 168pp; English.
XX
CC   The present sequence is porcine alphal(I) collagen. The present
CC   invention relates to recombinant synthesis of collagens and gelatins
CC   derived from animals. Collagen is useful in medical, pharmaceutical,
CC   food and cosmetic industries. Collagen is an important component of
CC   arterial sealants, bone grafts, drug delivery system, dermal implants,
CC   haemostats, and incontinence implants, and for treating autoimmune
CC   disorders such as rheumatoid arthritis. Collagen is useful in food
CC   products such as sausage casings, and in cosmetics or facial and skin
CC   products such as moisturisers. Recombinant gelatin is useful in vaccine
CC   formulations for treating viral infections, autoimmune diseases and
CC   cancer. Gelatin is useful in the manufacture or as a component of
CC   various pharmaceutical and medical devices and products, in food and
CC   beverage industries, in hair care and skin care products, as a glue or
CC   adhesive in various manufacturing processes, as a light-sensitive coating
CC   in various electronic devices, as photoresist base in photolithographic
CC   processes, in printing and photographic applications, in laboratory
CC   application, and as a component in various gels used for biochemical and
CC   electrophoretic analysis, including enzymographic gels.
XX
SQ   Sequence   1449 AA;


  Query Match             100.0%;  Score 580;  DB 22;  Length 1449;
  Best Local Similarity   100.0%;  Pred. No. 1.4e-34;
  Matches  100;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    1078 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 1137

Qy      61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
           |||||||||||||||||||||||||||||||||||||||||
Db    1138 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 1177


RESULT  30
AAW68485
ID   AAW68485 standard; Protein; 1464 AA.
XX
AC   AAW68485;
XX
DT   08-DEC-1998  (first entry)
XX
DE   Human recombinant collagen protein.
XX
KW   Primer; PCR; amplification; human; collagen; mammal; plant; prosthesis;
KW   cardiac valve; ligament; tendon; skin; gingival implant; perfumes;
KW   nerve regeneration; antibiotic; growth factor; cancer; inflammatory;
KW   gelatin; glue; food.
XX
OS   Synthetic.
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..22
FT                   /note= "signal peptide"
FT   Protein         23..999
FT                   /note= "mature protein"
FT   Cleavage-site   161
FT                   /note= "cleavage site for aminopeptidase"
FT   Cleavage-site   1218
FT                   /note= "cleavage site for carboxypeptidase"
XX
```

PN WO9827202-A1.
XX
PD 25-JUN-1998.
XX
PF 17-DEC-1997; 97WO-FR02331.
XX
PR 17-DEC-1996; 96FR-0016224.
XX
PA (BIOC-) BIOCEM SA.
XX
PI Bournat P, Comte J, Exposito JY, Garrone R, Gruber V;
PI Merot B, Ruggiero F;
XX
DR WPI; 1998-362771/31.
DR N-PSDB; AAV60814.
XX
PT New recombinant nucleic acid for expressing collagen or derivatives
PT in plants - useful as, e.g. bio-materials and in therapeutic,
PT cosmetic and odontological compositions
XX
PS Disclosure; Fig 7; 138pp; French.
XX
CC The invention relates to the production of mammalian collagen in plants.
CC 2 clones: alpha3 and alpha22, spanning the human collagen type I gene
CC were isolated from a MG-63 osteosarcoma library. Clone alpha3 contained
CC 83 bp of the 5' untranslated region and the first 1920 bp of coding
CC sequence, whereas clone alpha22 contained sequence encoding amino acids
CC 171-1454 of the protein and around 500 bp of the 3' untranslated region.
CC The 2 clones were used to generate a number of fragments which were used
CC to construct composite sequences encoding variant collagen molecules.
CC The fragments are: (A) containing nucleotides (nt) -4 to 479;
CC (B) containing TAA upstream of the sequence encoding the PRS
CC (pathogenesis-related protein S) signal peptide and bases 66-77 from the
CC sequence encoding the N-terminus of the pro-collagen amino propeptide
CC domain; (C) the whole of the amino propeptide domain (nt 72-479); (D) all
CC of the amino-telopeptide domain (nt 474-534) and the N-terminus of the
CC helicoidal region (nt 535-1920); (E) the DraIII-BamHI fragment
CC (1709-2808) of alpha22, encoding aa 567-936 of the central helicoidal
CC domain; (F) the BamHI-EcoRI (2803-4362) region of alpha22, encoding
CC aa 936-1192 in the central helicoidal domain and aa 1193-1454 in the
CC C-propeptide domain; (G) the C-terminus of the C-propeptide domain
CC (aa 1346-1464) plus stop codons, and (H) as G but encoding aa 1343-1401
CC and also including the KDEL motif for retention in the ER. This sequence
CC represents a recombinant human collagen. The encoding gene was
CC constructed from fragments (A), (D), (E), (F) and (G). The recombinant
CC gene is used for expression of mammalian collagen in plant cells. The
CC transformed plants, their extracts and parts are useful as biomaterials
CC (haemostatic compresses, sponges or bandages) and in pharmaceutical,
CC medical, odontological, cosmetic and biotechnological compositions (e.g.
CC as prostheses for cardiac valves, ligaments or tendons; skin substitutes;
CC gingival implants; microcapsules for perfumes; guide tubes for nerve
CC regeneration; slow release products for antibiotics, growth factors,
CC anticancer agents or anti-inflammatories; surgical thread and components
CC of ointments). They are suitable for treating any disorder related to
CC collagen dysfunction and gelatin, produced from collagen, is used to
CC produce glues, surgical prostheses and foods.
XX
SQ Sequence 1464 AA;

Query Match 100.0%; Score 580; DB 19; Length 1464;
Best Local Similarity 100.0%; Pred. No. 1.4e-34;
Matches 100; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db 1093 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 1152

Qy 61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
||||||||||||||||||||||||||||||||||||||||
Db 1153 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 1192

RESULT 31
AAU14136
ID AAU14136 standard; Protein; 1464 AA.
XX
AC AAU14136;
XX
DT 24-OCT-2001 (first entry)
XX
DE Human novel protein #7.
XX
KW Human; novel protein; Antianaemic; osteopathic; antiinflammatory;
KW immunomodulatory; cytostatic; neuroprotective; vulnerary; nootropic;
KW anticonvulsant; antiarthritic; cerebroprotective; antifungal; antiviral;
KW antibacterial; antiallergic; dermatological; haemostatic; antiasthmatic;
KW thrombolytic; immunogen; antibody; gene therapy; neurological disorder;
KW Parkinson's disease; inflammatory disorder; cancer; asthma; osteoporosis;
KW tissue regeneration; immune disorder.
XX
OS Homo sapiens.
XX
PN WO200155437-A2.
XX
PD 02-AUG-2001.
XX
PF 25-JAN-2001; 2001WO-US02623.
XX
PR 25-JAN-2000; 2000US-0491404.
XX
PA (HYSE-) HYSEQ INC.
XX
PI Tang YT, Liu C, Drmanac RT;
XX
DR WPI; 2001-451939/48.
DR N-PSDB; AAS22441.
XX
PT Isolated polypeptides useful for treating anti-inflammatory diseases,
PT nervous system disorders, and for regenerating bone and cartilage -
XX
PS Example 4; Page 525-527; 894pp; English.
XX
CC The invention relates to polynucleotides encoding novel human
CC proteins or their active domains. The polypeptides, polynucleotides and
CC antibodies raised against the polypeptides are used in a method of
CC treatment of a mammal and prevention of disorders caused by the aberrant
CC protein expression or activity. The polypeptides can be used as
CC molecular weight markers, food supplements, and in antibody production.
CC The polypeptides are used to identify compounds which bind to the
CC polypeptides. Polynucleotides of the invention are used as probes and
CC primers, for sequencing, for chromosome or gene mapping, in the
CC production of recombinant proteins, and in generating anti-sense DNA or
CC RNA and in gene therapy. Polypeptides of the invention can be used to
CC target drugs to a tumour, in assays to determine biological activity, to
CC raise antibodies/elicit an immune response, to determine quantitative
CC protein levels, as tissue markers, and to isolate receptors or ligands.
CC Polypeptides of the invention may also be useful in treating platelet
CC disorders, stem cell disorders, regenerating bone, cartilage, tendon,
CC ligament and/or nerve tissue, wound healing, treating burns, promoting
CC the proliferation, differentiation and survival of stem cells, as a
CC contraceptive, treating osteoporosis and osteoarthritis, anaemia,
CC Alzheimer's, Parkinson's and Huntington's diseases, amylotrophic lateral
CC sclerosis, stroke, immune deficiencies resulting from bacterial, viral or
CC fungal infection or from autoimmunity, cancer, allergy, asthma,
CC graft-versus-host disease, eczema, haemophilia, thrombosis,
CC anti-inflammatory diseases, nervous system disorders, and infection.
CC The present sequence represents a protein of the invention.
XX
SQ Sequence 1464 AA;

Query Match 100.0%; Score 580; DB 22; Length 1464;
Best Local Similarity 100.0%; Pred. No. 1.4e-34;
Matches 100; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy      1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db   1093 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 1152

Qy     61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
          |||||||||||||||||||||||||||||||||||||||
Db   1153 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 1192


RESULT  32
AAB82454
ID   AAB82454 standard; Protein; 1464 AA.
XX
AC   AAB82454;
XX
DT   22-AUG-2001  (first entry)
XX
DE   Human pro-alpha-1 chain of type I procollagen.
XX
KW   COL1A1 gene; collagen; procollagen; human.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..22
FT                   /label= Signal_peptide
FT   Protein         23..1464
FT                   /label= Mature_protein
XX
PN   WO200144455-A2.
XX
PD   21-JUN-2001.
XX
PF   12-DEC-2000; 2000WO-GB04741.
XX
PR   15-DEC-1999;   99GB-0029487.
XX
PA   (ASTR ) ASTRAZENECA AB.
PA   (ASTR ) ASTRAZENECA UK LTD.
XX
PI   Beri R;
XX
DR   WPI; 2001-398145/42.
DR   N-PSDB; AAF90491.
XX
PT   Novel antisense DNA oligonucleotide useful for inhibiting the
PT   expression of wild type COL1A1 gene, for treating, reducing the risk
PT   of, and preventing collagen disorders  -
XX
PS   Disclosure; Page 21-26; 30pp; English.
XX
CC   The present sequence is that of the pro-alpha-1 chain of human
CC   type I procollagen.  The present invention relates to antisense
CC   oligonucleotides (ASOs) and their use in inhibiting expression of
CC   type I procollagen.  The ASOs comprise 18-25 nucleotides and are
CC   complementary to a specific region within the type I collagen
CC   pro-alpha-1 chain gene (see AAF90491), especially those given in
CC   AAF90492-503.  They are capable of inhibiting the expression of
CC   the pro-alpha-1 chain in a cell that expresses it.  The ASOs are
CC   used in a claimed method of treating, or reducing a risk of, a
CC   collagen disorder.  Such disorders may include those caused by
CC   overproduction of collagen fibres, such as liver cirrhosis, kidney,
CC   liver and heart fibrosis, scleroderma, hypertrophic scars and
CC   keloids.
XX
SQ   Sequence   1464 AA;


  Query Match           100.0%;  Score 580;  DB 22;  Length 1464;
  Best Local Similarity  100.0%;  Pred. No. 1.4e-34;
  Matches  100;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db   1093 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagapgk 1152

Qy     61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
          |||||||||||||||||||||||||||||||||||||||
Db   1153 dglnglpgpigppgprgrtgdagpvgppgppgppgppgpp 1192


RESULT  33
AAE02532
ID   AAE02532 standard; Protein; 1463 AA.
XX
AC   AAE02532;
XX
DT   10-AUG-2001  (first entry)
XX
DE   Bovine alpha1(I) collagen.
XX
KW   Bovine; alpha1(I) collagen; gelatin; cytostatic; viral infection;
KW   pharmaceutical; food industry; cosmetic; autoimmune disorder; vaccine;
KW   medical; arterial sealant; bone graft; dermal implant; haemostat; cancer;
KW   rheumatoid arthritis; beverage; photographic application.
XX
OS   Bos sp.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 627
FT                   /note= "Encoded by CT"
XX
PN   WO200134647-A2.
XX
PD   17-MAY-2001.
XX
PF   10-NOV-2000; 2000WO-US30792.
XX
PR   12-NOV-1999;   99US-0439058.
PR   10-NOV-2000; 2000US-0439058.
XX
PA   (FIBR-) FIBROGEN INC.
XX
PI   Bell MP,  Neff TB,  Polarek JW,  Seeley TW;
XX
DR   WPI; 2001-335911/35.
DR   N-PSDB; AAD06573.
XX
PT   Novel isolated and purified bovine or porcine collagens and gelatins
PT   useful in medical, pharmaceutical, food and cosmetic industries, as
PT   vaccine, and for treating autoimmune disorders, infections and cancer
PT   -
XX
PS   Claim 6; Fig 2; 168pp; English.
XX
CC   The present sequence is bovine alpha1(I) collagen. The present
CC   invention relates to recombinant synthesis of collagens and gelatins
CC   derived from animals. Collagen is useful in medical, pharmaceutical,
CC   food and cosmetic industries. Collagen is an important component of
CC   arterial sealants, bone grafts, drug delivery system, dermal implants,
CC   haemostats, and incontinence implants, and for treating autoimmune
CC   disorders such as rheumatoid arthritis. Collagen is useful in food
CC   products such as sausage casings, and in cosmetics or facial and skin
CC   products such as moisturisers. Recombinant gelatin is useful in vaccine
CC   formulations for treating viral infections, autoimmune diseases and
CC   cancer. Gelatin is useful in the manufacture or as a component of
CC   various pharmaceutical and medical devices and products, in food and
CC   beverage industries, in hair care and skin care products, as a glue or
CC   adhesive in various manufacturing processes, as a light-sensitive coating
CC   in various electronic devices, as photoresist base in photolithographic
CC   processes, in printing and photographic applications, in laboratory
CC   application, and as a component in various gels used for biochemical and
CC   electrophoretic analysis, including enzymographic gels.
XX
SQ   Sequence   1463 AA;
```

```
  Query Match             98.8%;  Score 573;  DB 22;  Length 1463;
  Best Local Similarity   98.0%;  Pred. No. 4.4e-34;
  Matches   98;  Conservative    1;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||:|||
Db   1092 rgdkgetgeqgdrgikghrgfsglqgppgppgspgeqgpsgasgpagprgppgsagspgk 1151

Qy     61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
          |||||||||||||||||||||| ||||||||||||||||
Db   1152 dglnglpgpigppgprgrtgdagpagppgppgppgppgpp 1191


RESULT  34
AAR79480
ID   AAR79480 standard; Protein; 1442 AA.
XX
AC   AAR79480;
XX
DT   19-JAN-1996  (first entry)
XX
DE   Rat type II collagen.
XX
KW   Collagen; bone progenitor; gene transfer; gene therapy; osteoporosis;
KW   osteotomy; bone repair; osteotropic; Pichia pastoris.
XX
OS   Rattus sp.
XX
PN   WO9522611-A2.
XX
PD   24-AUG-1995.
XX
PF   21-FEB-1995;   95WO-US02251.
XX
PR   30-SEP-1994;   94US-0316650.
PR   18-FEB-1994;   94US-0199780.
XX
PA   (UNMI ) UNIV MICHIGAN.
XX
DR   WPI; 1995-302717/39.
XX
PT   Transferring nucleic acid into bone progenitor cell(s) - using a
PT   bone compatible matrix, for treatment of fracture(s) and
PT   osteoporosis.
XX
PS   Disclosure; Page 197-208; 317pp; English.
XX
CC   Human, rat and mouse collagen type II (given in AAR79479-81,
CC   respectively) can be used to stimulate bone progenitor cells as a
CC   means of treating bone-related diseases in association with an
CC   osteotropic gene.
XX
SQ   Sequence   1442 AA;


  Query Match             81.4%;  Score 472;  DB 16;  Length 1442;
  Best Local Similarity   78.0%;  Pred. No. 8.5e-27;
  Matches   78;  Conservative   10;  Mismatches   12;  Indels    0;  Gaps    0;

Qy      1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
          ||||||:||||:||:||||||:|||| |||||  |:|| || :||:|||||||  |  ||
Db   1070 rgdkgesgeqgerglkghrgftglqglpgppgpsgdqgasgpagpsgprgppgpvgpsgk 1129

Qy     61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
          || ||:|||||||||||||:|: ||||||| ||||||||||
Db   1130 dgsngipgpigppgprgrsgetgpvgppgspgppgppgpp 1169


RESULT  35
AAR71703
ID   AAR71703 standard; protein; 1418 AA.
XX
AC   AAR71703;
XX
DT   17-OCT-1995  (first entry)
XX
DE   Collagen alpha 1 (II) chain precursor.
XX
KW   Collagen; antibody; immunoassay; metabolism; diagnosis; monitoring;
KW   disorder; osteoporosis; metastatic progression; Paget's disease;
KW   hyperthyroidism; bone; resorption; rheumatoid arthritis;
KW   osteoarthritis; vasculitis syndrome.
XX
OS   Homo sapiens.
XX
PN   WO9508115-A.
XX
PD   23-MAR-1995.
XX
PF   19-SEP-1994;   94WO-DK00348.
XX
PR   17-SEP-1993;   93DK-0001040.
XX
PA   (OSTE-) OSTEOMETER AS.
XX
PI   Bonde M,  Qvist P;
XX
DR   WPI; 1995-131456/17.
XX
PT   Assaying collagen fragments in body fluid by immunoassay - using
PT   antibodies raised against synthetic peptide(s) contg. potential
PT   crosslinking sites, to diagnose and monitor disorders of collagen
PT   metabolism, e.g. osteoporosis.
XX
PS   Disclosure (Appendix A); Page 53; 87pp; English.
XX
CC   Determination of collagen fragments in body fluids can be achieved
CC   by immunoassay using antibodies directed against synthetic peptides
CC   derived from collagen which contain sites of potential crosslinking.
CC   The method is used to diagnose and monitor treatment of disorders of
CC   collagen metabolism (degredation of type I collagen may indicate
CC   osteoporosis, metastatic progression, Paget's disease,
CC   hyperthyroidism or other conditions involving excessive bone
CC   resorption; degredation of type II collagen may indicate rheumatoid
CC   arthritis or osteoarthritis; and of type III collagen, vaculitis
CC   syndrome).  The method can also be used to assess the toxicity of a
CC   compound and to test drugs for their effect on collagen metabolism.
XX
SQ   Sequence   1418 AA;


  Query Match             79.5%;  Score 461;  DB 16;  Length 1418;
  Best Local Similarity   76.0%;  Pred. No. 5.2e-26;
  Matches   76;  Conservative    9;  Mismatches   15;  Indels    0;  Gaps    0;

Qy      1 RGDKGETGEQGDRGIKGHRGFSGLQGPPGPPGSPGEQGPSGASGPAGPRGPPGSAGAPGK 60
          ||||||  || |:||:||||||:|||| |||||  |:|| || :||:|||||||  |  ||
Db   1046 rgdkgeagepgerglkghrgftglqglpgppgpsgdqgasgpagpsgprgppgpvgpsgk 1105

Qy     61 DGLNGLPGPIGPPGPRGRTGDAGPVGPPGPPGPPGPPGPP 100
          || ||:|||||||||||||:|: || |||| ||||||||||
Db   1106 dgangipgpigppgprgrsgetgpagppgnpgppgppgpp 1145


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GenCore version 4.5

OM protein - protein search, using sw model

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Sequence: 1 EAGLPGAKGLTGSPGSPGPD.....PPGARGQAGVMGFPGPKGAA 59

Scoring table: BLOSUM62
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Searched: 522463 seqs, 74073290 residues

Total number of hits satisfying chosen parameters: 522463

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Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	333	100.0	59	22	AAE02704	Human alpha1 (I) t
2	333	100.0	59	22	AAB68058	Amino acid sequenc
3	333	100.0	101	22	AAE02705	Human alpha1 (I) t
4	333	100.0	101	22	AAB68059	Amino acid sequenc
5	333	100.0	185	22	AAE02706	Human alpha1 (I) t
6	333	100.0	185	22	AAB68060	Amino acid sequenc
7	333	100.0	251	22	AAE02707	Human alpha1 (I) t
8	333	100.0	251	22	AAB68061	Amino acid sequenc
9	333	100.0	500	22	AAE02708	Human alpha1 (I) t
10	333	100.0	500	22	AAB68062	Amino acid sequenc
11	333	100.0	501	22	AAE02703	Human alpha1 (I) t
12	333	100.0	501	22	AAB68057	Amino acid sequenc
13	333	100.0	662	22	AAE02718	Human alpha1 (I) t
14	333	100.0	662	22	AAB68072	Amino acid sequenc
15	333	100.0	1057	21	AAY84541	Amino acid sequenc
16	333	100.0	1057	21	AAY84544	A human collagen 1
17	333	100.0	1058	21	AAY84403	Amino acid sequenc
18	333	100.0	1107	17	AAR89472	Collagen/decorin(a
19	333	100.0	1107	21	AAY84540	Amino acid sequenc
20	333	100.0	1169	17	AAR89469	Collagen/BMP-2B fu
21	333	100.0	1169	21	AAY84537	Amino acid sequenc
22	333	100.0	1171	17	AAR89470	Collagen/TGF-beta-
23	333	100.0	1171	21	AAY84538	A chimeric collage
24	333	100.0	1341	16	AAR71701	Collagen alpha 1 (
25	333	100.0	1341	21	AAY96122	Collagen type I al
26	333	100.0	1388	17	AAR89471	Collagen/decorin f
27	333	100.0	1411	21	AAY56800	Human preproalpha
28	333	100.0	1449	22	AAE02535	Porcine alpha1(I)
29	333	100.0	1463	22	AAE02532	Bovine alpha1(I) c
30	333	100.0	1464	19	AAW68485	Human recombinant
31	333	100.0	1464	22	AAU14136	Human novel protei
32	333	100.0	1464	22	AAB82454	Human pro-alpha-1
33	325	97.6	1388	21	AAY84539	Amino acid sequenc
34	321	96.4	595	20	AAY06239	Mouse recombinant
35	321	96.4	822	20	AAY06240	Mouse recombinant
36	256	76.9	1418	15	AAR59751	Type II collagen.
37	256	76.9	1418	16	AAR71703	Collagen alpha 1 (
38	256	76.9	1418	21	AAY96124	Collagen type II a
39	256	76.9	1418	22	AAB35624	Human type II coll
40	256	76.9	1442	16	AAR79480	Rat type II collag
41	256	76.9	1487	19	AAW61562	Human type II coll
42	234	70.3	1078	16	AAR71704	Collagen alpha 1 (
43	234	70.3	1078	21	AAY96125	Collagen type III
44	234	70.3	1196	13	AAR28916	Type III procollag
45	234	70.3	1466	22	AAE02537	Porcine alpha1(III

ALIGNMENTS

RESULT 1
AAE02704
ID AAE02704 standard; Protein; 59 AA.
XX
AC AAE02704;
XX
DT 06-AUG-2001 (first entry)
XX
DE Human alpha1 (I) type I collagen helical domain (residues 531-589).
XX
KW Human; recombinant gelatin; binding agent; stabilising agent; emulsifier;
KW encapsulant; film-forming agent; moisturising agent; thickening agent;
KW gelling agent; colloidal agent; adhesive agent; gel capsule; photography;
KW plasma expander; colloidal volume replacement material; graft coating;
KW medical sponge; medical plug; micro-carrier; edible composition;
KW protein supplement; fat substitute; nutritional supplement; cell culture;
KW edible coating; cosmetic; vaccine; therapy; arthritis; athrosis;
KW cartilage degeneration; joint flexibility; food industry; beverage;
KW alpha1 (I) type I collagen.
XX
OS Homo sapiens.
XX
PN WO200134646-A2.
XX
PD 17-MAY-2001.
XX
PF 10-NOV-2000; 2000WO-US30791.
XX
PR 12-NOV-1999; 99US-0165114.
PR 15-MAY-2000; 2000US-0204437.
XX
PA (FIBR-) FIBROGEN INC.
XX
PI Chang RC, Kivirikko KI, Neff TB, Olsen DR, Polarek JW;

XX
DR WPI; 2001-329072/34.
XX
PT Gelatin useful for pharmaceuticals, cosmetics and edible foods, is
PT prepared recombinantly -
XX
PS Claim 21; Page 123; 137pp; English.
XX
CC The patent discloses recombinant human gelatin which is useful
CC in various compositions including binding agents, encapsulants,
CC stabilising agents, film-forming agents, moisturising agents,
CC emulsifiers, thickening agents, gelling agents, colloidal agents,
CC adhesive agents, pharmaceutical compositions, hard gel capsules,
CC soft gel capsules, plasma expander, colloidal volume replacement
CC materials, graft coatings, medical sponges, medical plugs,
CC pharmaceutical stabilisers, micro-carriers, edible compositions,
CC protein supplements, fat substitutes, nutritional supplements,
CC edible coatings, photographic compositions, cosmetic compositions,
CC industrial composition, cell culture compositions and compositions
CC for use in the laboratory. Pharmaceutical compositions comprising
CC recombinant gelatin are used as vaccines. They are also used to
CC treat various joint conditions such as arthritis, athrosis and
CC other conditions related to the degeneration of cartilage and joint
CC flexibility. Recombinant gelatin is also used in food and beverage
CC industries. The present sequence is human alpha1 (I) type I collagen
CC helical domain (residues 531-589). This sequence is a recombinant
CC gelatin.
XX
SQ Sequence 59 AA;

Query Match 100.0%; Score 333; DB 22; Length 59;
Best Local Similarity 100.0%; Pred. No. 5.6e-24;
Matches 59; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db 1 eaglpgakgltgspgspgpdgktgppgpagqdgrpgppgppgargqagvmgfpgpkgaa 59

RESULT 2
AAB68058
ID AAB68058 standard; Protein; 59 AA.
XX
AC AAB68058;
XX
DT 09-JUL-2001 (first entry)
XX
DE Amino acid sequence of a recombinant human gelatin.
XX
KW Human; gelatin; vaccine; anaphylactic reaction.
XX
OS Homo sapiens.
XX
PN WO200134801-A2.
XX
PD 17-MAY-2001.
XX
PF 10-NOV-2000; 2000WO-US30843.
XX
PR 12-NOV-1999; 99US-0165114.
PR 15-MAY-2000; 2000US-0204437.
XX
PA (FIBR-) FIBROGEN INC.
XX
PI Chang RC, Kivirikko KI, Neff TB, Olsen DR, Polarek JW;
XX
DR WPI; 2001-308784/32.
XX
PT Vaccine formulations (I) comprising recombinant human gelatin, useful
PT for vaccinating against e.g. mumps, measles, rubella, tetanus, rabies
PT and cholera, the gelatin is non-immunogenic and confers stability at
PT ambient temperatures -
XX
PS Claim 11; Page 116; 130pp; English.
XX
CC The present sequence represents a human recombinant gelatin polypeptide.
CC The recombinant gelatin polypeptide is used to produce vaccine
CC formulations of the invention. The recombinant human gelatin is
CC non-immunogenic (therefore reducing anaphylactic reactions) and confers
CC stability at ambient temperatures. The vaccine formulation comprises a
CC vaccine formulated for the prevention of a disease selected from vaccinia
CC virus (small pox), polio virus (Salk and Sabin), mumps, measles, rubella,
CC diphtheria, tetanus, Varicella-Zoster (chicken pox/shingles), pertussis
CC (whooping cough), Bacille Calmette-Geurin (BCG, tuberculosis),
CC haemophillus influenzae meningitis, rabies, cholera, Japanese
CC encephalitis virus, salmonella typhi, shigella, hepatitis A and B,
CC adenovirus, yellow fever, foot and mouth disease, herpes simplex virus,
CC respiratory syncytial virus, rotavirus, Dengue, West Nile virus, turkey
CC herpes virus (Marek's disease), influenza and/or anthrax.
XX
SQ Sequence 59 AA;

Query Match 100.0%; Score 333; DB 22; Length 59;
Best Local Similarity 100.0%; Pred. No. 5.6e-24;
Matches 59; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db 1 eaglpgakgltgspgspgpdgktgppgpagqdgrpgppgppgargqagvmgfpgpkgaa 59

RESULT 3
AAE02705
ID AAE02705 standard; Protein; 101 AA.
XX
AC AAE02705;
XX
DT 06-AUG-2001 (first entry)
XX
DE Human alpha1 (I) type I collagen helical domain (residues 531-631).
XX
KW Human; recombinant gelatin; binding agent; stabilising agent; emulsifier;
KW encapsulant; film-forming agent; moisturising agent; thickening agent;
KW gelling agent; colloidal agent; adhesive agent; gel capsule; photography;
KW plasma expander; colloidal volume replacement material; graft coating;
KW medical sponge; medical plug; micro-carrier; edible composition;
KW protein supplement; fat substitute; nutritional supplement; cell culture;
KW edible coating; cosmetic; vaccine; therapy; arthritis; athrosis;
KW cartilage degeneration; joint flexibility; food industry; beverage;
KW alpha1 (I) type I collagen.
XX
OS Homo sapiens.
XX
PN WO200134646-A2.
XX
PD 17-MAY-2001.
XX
PF 10-NOV-2000; 2000WO-US30791.
XX
PR 12-NOV-1999; 99US-0165114.
PR 15-MAY-2000; 2000US-0204437.
XX
PA (FIBR-) FIBROGEN INC.
XX
PI Chang RC, Kivirikko KI, Neff TB, Olsen DR, Polarek JW;
XX
DR WPI; 2001-329072/34.
XX
PT Gelatin useful for pharmaceuticals, cosmetics and edible foods, is
PT prepared recombinantly -
XX
PS Claim 21; Page 123-124; 137pp; English.
XX
CC The patent discloses recombinant human gelatin which is useful

CC in various compositions including binding agents, encapsulants,
CC stabilising agents, film-forming agents, moisturising agents,
CC emulsifiers, thickening agents, gelling agents, colloidal agents,
CC adhesive agents, pharmaceutical compositions, hard gel capsules,
CC soft gel capsules, plasma expander, colloidal volume replacement
CC materials, graft coatings, medical sponges, medical plugs,
CC pharmaceutical stabilisers, micro-carriers, edible compositions,
CC protein supplements, fat substitutes, nutritional supplements,
CC edible coatings, photographic compositions, cosmetic compositions,
CC industrial composition, cell culture compositions and compositions
CC for use in the laboratory. Pharmaceutical compositions comprising
CC recombinant gelatin are used as vaccines. They are also used to
CC treat various joint conditions such as arthritis, athrosis and
CC other conditions related to the degeneration of cartilage and joint
CC flexibility. Recombinant gelatin is also used in food and beverage
CC industries. The present sequence is human alphal (I) type I collagen
CC helical domain (residues 531-631). This sequence is a recombinant
CC gelatin.
XX
SQ Sequence 101 AA;

Query Match 100.0%; Score 333; DB 22; Length 101;
Best Local Similarity 100.0%; Pred. No. 9.3e-24;
Matches 59; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db 1 eaglpgakgltgspgspgpdgktgppgpagqdgrpgppgppgpargqagvmgfpgpkgaa 59

RESULT 4
AAB68059
ID AAB68059 standard; Protein; 101 AA.
XX
AC AAB68059;
XX
DT 09-JUL-2001 (first entry)
XX
DE Amino acid sequence of a recombinant human gelatin.
XX
KW Human; gelatin; vaccine; anaphylactic reaction.
XX
OS Homo sapiens.
XX
PN WO200134801-A2.
XX
PD 17-MAY-2001.
XX
PF 10-NOV-2000; 2000WO-US30843.
XX
PR 12-NOV-1999; 99US-0165114.
PR 15-MAY-2000; 2000US-0204437.
XX
PA (FIBR-) FIBROGEN INC.
XX
PI Chang RC, Kivirikko KI, Neff TB, Olsen DR, Polarek JW;
XX
DR WPI; 2001-308784/32.
XX
PT Vaccine formulations (I) comprising recombinant human gelatin, useful
PT for vaccinating against e.g. mumps, measles, rubella, tetanus, rabies
PT and cholera, the gelatin is non-immunogenic and confers stability at
PT ambient temperatures -
XX
PS Claim 11; Page 116-117; 130pp; English.
XX
CC The present sequence represents a human recombinant gelatin polypeptide.
CC The recombinant gelatin polypeptide is used to produce vaccine
CC formulations of the invention. The recombinant human gelatin is
CC non-immunogenic (therefore reducing anaphylactic reactions) and confers
CC stability at ambient temperatures. The vaccine formulation comprises a
CC vaccine formulated for the prevention of a disease selected from vaccinia
CC virus (small pox), polio virus (Salk and Sabin), mumps, measles, rubella,
CC diphtheria, tetanus, Varicella-Zoster (chicken pox/shingles), pertussis
CC (whooping cough), Bacille Calmette-Geurin (BCG, tuberculosis),
CC haemophillus influenzae meningitis, rabies, cholera, Japanese
CC encephalitis virus, salmonella typhi, shigella, hepatitis A and B,
CC adenovirus, yellow fever, foot and mouth disease, herpes simplex virus,
CC respiratory syncytial virus, rotavirus, Dengue, West Nile virus, turkey
CC herpes virus (Marek's disease), influenza and/or anthrax.
XX
SQ Sequence 101 AA;

Query Match 100.0%; Score 333; DB 22; Length 101;
Best Local Similarity 100.0%; Pred. No. 9.3e-24;
Matches 59; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db 1 eaglpgakgltgspgspgpdgktgppgpagqdgrpgppgppgpargqagvmgfpgpkgaa 59

RESULT 5
AAE02706
ID AAE02706 standard; Protein; 185 AA.
XX
AC AAE02706;
XX
DT 06-AUG-2001 (first entry)
XX
DE Human alphal (I) type I collagen helical domain (residues 531-715).
XX
KW Human; recombinant gelatin; binding agent; stabilising agent; emulsifier;
KW encapsulant; film-forming agent; moisturising agent; thickening agent;
KW gelling agent; colloidal agent; adhesive agent; gel capsule; photography;
KW plasma expander; colloidal volume replacement material; graft coating;
KW medical sponge; medical plug; micro-carrier; edible composition;
KW protein supplement; fat substitute; nutritional supplement; cell culture;
KW edible coating; cosmetic; vaccine; therapy; arthritis; athrosis;
KW cartilage degeneration; joint flexibility; food industry; beverage;
KW alphal (I) type I collagen.
XX
OS Homo sapiens.
XX
PN WO200134646-A2.
XX
PD 17-MAY-2001.
XX
PF 10-NOV-2000; 2000WO-US30791.
XX
PR 12-NOV-1999; 99US-0165114.
PR 15-MAY-2000; 2000US-0204437.
XX
PA (FIBR-) FIBROGEN INC.
XX
PI Chang RC, Kivirikko KI, Neff TB, Olsen DR, Polarek JW;
XX
DR WPI; 2001-329072/34.
XX
PT Gelatin useful for pharmaceuticals, cosmetics and edible foods, is
PT prepared recombinantly -
XX
PS Claim 21; Page 124; 137pp; English.
XX
CC The patent discloses recombinant human gelatin which is useful
CC in various compositions including binding agents, encapsulants,
CC stabilising agents, film-forming agents, moisturising agents,
CC emulsifiers, thickening agents, gelling agents, colloidal agents,
CC adhesive agents, pharmaceutical compositions, hard gel capsules,
CC soft gel capsules, plasma expander, colloidal volume replacement
CC materials, graft coatings, medical sponges, medical plugs,
CC pharmaceutical stabilisers, micro-carriers, edible compositions,
CC protein supplements, fat substitutes, nutritional supplements,
CC edible coatings, photographic compositions, cosmetic compositions,

CC industrial composition, cell culture compositions and compositions
CC for use in the laboratory. Pharmaceutical compositions comprising
CC recombinant gelatin are used as vaccines. They are also used to
CC treat various joint conditions such as arthritis, athrosis and
CC other conditions related to the degeneration of cartilage and joint
CC flexibility. Recombinant gelatin is also used in food and beverage
CC industries. The present sequence is human alpha1 (I) type I collagen
CC helical domain (residues 531-715). This sequence is a recombinant
CC gelatin.
XX
SQ Sequence 185 AA;

Query Match 100.0%; Score 333; DB 22; Length 185;
Best Local Similarity 100.0%; Pred. No. 1.6e-23;
Matches 59; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db 1 eaglpgakgltgspgspgpdgktgppgpagqdgrpgppgppgargqagvmgfpgpkgaa 59

RESULT 6
AAB68060
ID AAB68060 standard; Protein; 185 AA.
XX
AC AAB68060;
XX
DT 09-JUL-2001 (first entry)
XX
DE Amino acid sequence of a recombinant human gelatin.
XX
KW Human; gelatin; vaccine; anaphylactic reaction.
XX
OS Homo sapiens.
XX
PN WO200134801-A2.
XX
PD 17-MAY-2001.
XX
PF 10-NOV-2000; 2000WO-US30843.
XX
PR 12-NOV-1999; 99US-0165114.
PR 15-MAY-2000; 2000US-0204437.
XX
PA (FIBR-) FIBROGEN INC.
XX
PI Chang RC, Kivirikko KI, Neff TB, Olsen DR, Polarek JW;
XX
DR WPI; 2001-308784/32.
XX
PT Vaccine formulations (I) comprising recombinant human gelatin, useful
PT for vaccinating against e.g. mumps, measles, rubella, tetanus, rabies
PT and cholera, the gelatin is non-immunogenic and confers stability at
PT ambient temperatures -
XX
PS Claim 11; Page 117; 130pp; English.
XX
CC The present sequence represents a human recombinant gelatin polypeptide.
CC The recombinant gelatin polypeptide is used to produce vaccine
CC formulations of the invention. The recombinant human gelatin is
CC non-immunogenic (therefore reducing anaphylactic reactions) and confers
CC stability at ambient temperatures. The vaccine formulation comprises a
CC vaccine formulated for the prevention of a disease selected from vaccinia
CC virus (small pox), polio virus (Salk and Sabin), mumps, measles, rubella,
CC diphtheria, tetanus, Varicella-Zoster (chicken pox/shingles), pertussis
CC (whooping cough), Bacille Calmette-Geurin (BCG, tuberculosis),
CC haemophillus influenzae meningitis, rabies, cholera, Japanese
CC encephalitis virus, salmonella typhi, shigella, hepatitis A and B,
CC adenovirus, yellow fever, foot and mouth disease, herpes simplex virus,
CC respiratory syncytial virus, rotavirus, Dengue, West Nile virus, turkey
CC herpes virus (Marek's disease), influenza and/or anthrax.
XX

SQ Sequence 185 AA;

Query Match 100.0%; Score 333; DB 22; Length 185;
Best Local Similarity 100.0%; Pred. No. 1.6e-23;
Matches 59; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db 1 eaglpgakgltgspgspgpdgktgppgpagqdgrpgppgppgargqagvmgfpgpkgaa 59

RESULT 7
AAE02707
ID AAE02707 standard; Protein; 251 AA.
XX
AC AAE02707;
XX
DT 06-AUG-2001 (first entry)
XX
DE Human alpha1 (I) type I collagen helical domain (residues 531-781).
XX
KW Human; recombinant gelatin; binding agent; stabilising agent; emulsifier;
KW encapsulant; film-forming agent; moisturising agent; thickening agent;
KW gelling agent; colloidal agent; adhesive agent; gel capsule; photography;
KW plasma expander; colloidal volume replacement material; graft coating;
KW medical sponge; medical plug; micro-carrier; edible composition;
KW protein supplement; fat substitute; nutritional supplement; cell culture;
KW edible coating; cosmetic; vaccine; therapy; arthritis; athrosis;
KW cartilage degeneration; joint flexibility; food industry; beverage;
KW alpha1 (I) type I collagen.
XX
OS Homo sapiens.
XX
PN WO200134646-A2.
XX
PD 17-MAY-2001.
XX
PF 10-NOV-2000; 2000WO-US30791.
XX
PR 12-NOV-1999; 99US-0165114.
PR 15-MAY-2000; 2000US-0204437.
XX
PA (FIBR-) FIBROGEN INC.
XX
PI Chang RC, Kivirikko KI, Neff TB, Olsen DR, Polarek JW;
XX
DR WPI; 2001-329072/34.
XX
PT Gelatin useful for pharmaceuticals, cosmetics and edible foods, is
PT prepared recombinantly -
XX
PS Claim 21; Page 125; 137pp; English.
XX
CC The patent discloses recombinant human gelatin which is useful
CC in various compositions including binding agents, encapsulants,
CC stabilising agents, film-forming agents, moisturising agents,
CC emulsifiers, thickening agents, gelling agents, colloidal agents,
CC adhesive agents, pharmaceutical compositions, hard gel capsules,
CC soft gel capsules, plasma expander, colloidal volume replacement
CC materials, graft coatings, medical sponges, medical plugs,
CC pharmaceutical stabilisers, micro-carriers, edible compositions,
CC protein supplements, fat substitutes, nutritional supplements,
CC edible coatings, photographic compositions, cosmetic compositions,
CC industrial composition, cell culture compositions and compositions
CC for use in the laboratory. Pharmaceutical compositions comprising
CC recombinant gelatin are used as vaccines. They are also used to
CC treat various joint conditions such as arthritis, athrosis and
CC other conditions related to the degeneration of cartilage and joint
CC flexibility. Recombinant gelatin is also used in food and beverage
CC industries. The present sequence is human alpha1 (I) type I collagen
CC helical domain (residues 531-781). This sequence is a recombinant
CC gelatin.

```
XX
SQ   Sequence   251 AA;


  Query Match             100.0%;  Score 333;  DB 22;  Length 251;
  Best Local Similarity   100.0%;  Pred. No. 2.2e-23;
  Matches   59;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 eaglpgakgltgspgspgpdgktgppgpagqdgrpgppgppgargqagvmgfpgpkgaa 59


RESULT   8
AAB68061
ID   AAB68061 standard; Protein; 251 AA.
XX
AC   AAB68061;
XX
DT   09-JUL-2001  (first entry)
XX
DE   Amino acid sequence of a recombinant human gelatin.
XX
KW   Human; gelatin; vaccine; anaphylactic reaction.
XX
OS   Homo sapiens.
XX
PN   WO200134801-A2.
XX
PD   17-MAY-2001.
XX
PF   10-NOV-2000; 2000WO-US30843.
XX
PR   12-NOV-1999;   99US-0165114.
PR   15-MAY-2000; 2000US-0204437.
XX
PA   (FIBR-) FIBROGEN INC.
XX
PI   Chang RC,  Kivirikko KI,  Neff TB,  Olsen DR,  Polarek JW;
XX
DR   WPI; 2001-308784/32.
XX
PT   Vaccine formulations (I) comprising recombinant human gelatin, useful
PT   for vaccinating against e.g. mumps, measles, rubella, tetanus, rabies
PT   and cholera, the gelatin is non-immunogenic and confers stability at
PT   ambient temperatures -
XX
PS   Claim 11; Page 118; 130pp; English.
XX
CC   The present sequence represents a human recombinant gelatin polypeptide.
CC   The recombinant gelatin polypeptide is used to produce vaccine
CC   formulations of the invention. The recombinant human gelatin is
CC   non-immunogenic (therefore reducing anaphylactic reactions) and confers
CC   stability at ambient temperatures. The vaccine formulation comprises a
CC   vaccine formulated for the prevention of a disease selected from vaccinia
CC   virus (small pox), polio virus (Salk and Sabin), mumps, measles, rubella,
CC   diphtheria, tetanus, Varicella-Zoster (chicken pox/shingles), pertussis
CC   (whooping cough), Bacille Calmette-Geurin (BCG, tuberculosis),
CC   haemophillus influenzae meningitis, rabies, cholera, Japanese
CC   encephalitis virus, salmonella typhi, shigella, hepatitis A and B,
CC   adenovirus, yellow fever, foot and mouth disease, herpes simplex virus,
CC   respiratory syncytial virus, rotavirus, Dengue, West Nile virus, turkey
CC   herpes virus (Marek's disease), influenza and/or anthrax.
XX
SQ   Sequence   251 AA;


  Query Match             100.0%;  Score 333;  DB 22;  Length 251;
  Best Local Similarity   100.0%;  Pred. No. 2.2e-23;
  Matches   59;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 eaglpgakgltgspgspgpdgktgppgpagqdgrpgppgppgargqagvmgfpgpkgaa 59


RESULT   9
AAE02708
ID   AAE02708 standard; Protein; 500 AA.
XX
AC   AAE02708;
XX
DT   06-AUG-2001  (first entry)
XX
DE   Human alpha1 (I) type I collagen helical domain (residues 531-1030).
XX
KW   Human; recombinant gelatin; binding agent; stabilising agent; emulsifier;
KW   encapsulant; film-forming agent; moisturising agent; thickening agent;
KW   gelling agent; colloidal agent; adhesive agent; gel capsule; photography;
KW   plasma expander; colloidal volume replacement material; graft coating;
KW   medical sponge; medical plug; micro-carrier; edible composition;
KW   protein supplement; fat substitute; nutritional supplement; cell culture;
KW   edible coating; cosmetic; vaccine; therapy; arthritis; athrosis;
KW   cartilage degeneration; joint flexibility; food industry; beverage;
KW   alpha1 (I) type I collagen.
XX
OS   Homo sapiens.
XX
PN   WO200134646-A2.
XX
PD   17-MAY-2001.
XX
PF   10-NOV-2000; 2000WO-US30791.
XX
PR   12-NOV-1999;   99US-0165114.
PR   15-MAY-2000; 2000US-0204437.
XX
PA   (FIBR-) FIBROGEN INC.
XX
PI   Chang RC,  Kivirikko KI,  Neff TB,  Olsen DR,  Polarek JW;
XX
DR   WPI; 2001-329072/34.
XX
PT   Gelatin useful for pharmaceuticals, cosmetics and edible foods, is
PT   prepared recombinantly -
XX
PS   Claim 21; Page 125-127; 137pp; English.
XX
CC   The patent discloses recombinant human gelatin which is useful
CC   in various compositions including binding agents, encapsulants,
CC   stabilising agents, film-forming agents, moisturising agents,
CC   emulsifiers, thickening agents, gelling agents, colloidal agents,
CC   adhesive agents, pharmaceutical compositions, hard gel capsules,
CC   soft gel capsules, plasma expander, colloidal volume replacement
CC   materials, graft coatings, medical sponges, medical plugs,
CC   pharmaceutical stabilisers, micro-carriers, edible compositions,
CC   protein supplements, fat substitutes, nutritional supplements,
CC   edible coatings, photographic compositions, cosmetic compositions,
CC   industrial composition, cell culture compositions and compositions
CC   for use in the laboratory. Pharmaceutical compositions comprising
CC   recombinant gelatin are used as vaccines. They are also used to
CC   treat various joint conditions such as arthritis, athrosis and
CC   other conditions related to the degeneration of cartilage and joint
CC   flexibility. Recombinant gelatin is also used in food and beverage
CC   industries. The present sequence is human alpha1 (I) type I collagen
CC   helical domain (residues 531-1030). This sequence is a recombinant
CC   gelatin.
XX
SQ   Sequence   500 AA;


  Query Match             100.0%;  Score 333;  DB 22;  Length 500;
  Best Local Similarity   100.0%;  Pred. No. 4.1e-23;
  Matches   59;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
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                 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 eaglpgakgltgspgspgpdgktgppgpagqdgrpgppgppgpargpagvmgfpgpkgaa 59


RESULT  10
AAB68062
ID   AAB68062 standard; Protein; 500 AA.
XX
AC   AAB68062;
XX
DT   09-JUL-2001  (first entry)
XX
DE   Amino acid sequence of a recombinant human gelatin.
XX
KW   Human; gelatin; vaccine; anaphylactic reaction.
XX
OS   Homo sapiens.
XX
PN   WO200134801-A2.
XX
PD   17-MAY-2001.
XX
PF   10-NOV-2000; 2000WO-US30843.
XX
PR   12-NOV-1999;   99US-0165114.
PR   15-MAY-2000; 2000US-0204437.
XX
PA   (FIBR-) FIBROGEN INC.
XX
PI   Chang RC,  Kivirikko KI,  Neff TB,  Olsen DR,  Polarek JW;
XX
DR   WPI; 2001-308784/32.
XX
PT   Vaccine formulations (I) comprising recombinant human gelatin, useful
PT   for vaccinating against e.g. mumps, measles, rubella, tetanus, rabies
PT   and cholera, the gelatin is non-immunogenic and confers stability at
PT   ambient temperatures -
XX
PS   Claim 11; Page 118-120; 130pp; English.
XX
CC   The present sequence represents a human recombinant gelatin polypeptide.
CC   The recombinant gelatin polypeptide is used to produce vaccine
CC   formulations of the invention. The recombinant human gelatin is
CC   non-immunogenic (therefore reducing anaphylactic reactions) and confers
CC   stability at ambient temperatures. The vaccine formulation comprises a
CC   vaccine formulated for the prevention of a disease selected from vaccinia
CC   virus (small pox), polio virus (Salk and Sabin), mumps, measles, rubella,
CC   diphtheria, tetanus, Varicella-Zoster (chicken pox/shingles), pertussis
CC   (whooping cough), Bacille Calmette-Geurin (BCG, tuberculosis),
CC   haemophillus influenzae meningitis, rabies, cholera, Japanese
CC   encephalitis virus, salmonella typhi, shigella, hepatitis A and B,
CC   adenovirus, yellow fever, foot and mouth disease, herpes simplex virus,
CC   respiratory syncytial virus, rotavirus, Dengue, West Nile virus, turkey
CC   herpes virus (Marek's disease), influenza and/or anthrax.
XX
SQ   Sequence   500 AA;


  Query Match             100.0%;  Score 333;  DB 22;  Length 500;
  Best Local Similarity   100.0%;  Pred. No. 4.1e-23;
  Matches   59;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 eaglpgakgltgspgspgpdgktgppgpagqdgrpgppgppgpargqagvmgfpgpkgaa 59


RESULT  11
AAE02703
ID   AAE02703 standard; Protein; 501 AA.
XX
AC   AAE02703;
XX
DT   06-AUG-2001  (first entry)
XX
DE   Human alpha1 (I) type I collagen helical domain (residues 179-679).
XX
KW   Human; recombinant gelatin; binding agent; stabilising agent; emulsifier;
KW   encapsulant; film-forming agent; moisturising agent; thickening agent;
KW   gelling agent; colloidal agent; adhesive agent; gel capsule; photography;
KW   plasma expander; colloidal volume replacement material; graft coating;
KW   medical sponge; medical plug; micro-carrier; edible composition;
KW   protein supplement; fat substitute; nutritional supplement; cell culture;
KW   edible coating; cosmetic; vaccine; therapy; arthritis; athrosis;
KW   cartilage degeneration; joint flexibility; food industry; beverage;
KW   alpha1 (I) type I collagen.
XX
OS   Homo sapiens.
XX
PN   WO200134646-A2.
XX
PD   17-MAY-2001.
XX
PF   10-NOV-2000; 2000WO-US30791.
XX
PR   12-NOV-1999;   99US-0165114.
PR   15-MAY-2000; 2000US-0204437.
XX
PA   (FIBR-) FIBROGEN INC.
XX
PI   Chang RC,  Kivirikko KI,  Neff TB,  Olsen DR,  Polarek JW;
XX
DR   WPI; 2001-329072/34.
XX
PT   Gelatin useful for pharmaceuticals, cosmetics and edible foods, is
PT   prepared recombinantly -
XX
PS   Claim 21; Page 121-123; 137pp; English.
XX
CC   The patent discloses recombinant human gelatin which is useful
CC   in various compositions including binding agents, encapsulants,
CC   stabilising agents, film-forming agents, moisturising agents,
CC   emulsifiers, thickening agents, gelling agents, colloidal agents,
CC   adhesive agents, pharmaceutical compositions, hard gel capsules,
CC   soft gel capsules, plasma expander, colloidal volume replacement
CC   materials, graft coatings, medical sponges, medical plugs,
CC   pharmaceutical stabilisers, micro-carriers, edible compositions,
CC   protein supplements, fat substitutes, nutritional supplements,
CC   edible coatings, photographic compositions, cosmetic compositions,
CC   industrial composition, cell culture compositions and compositions
CC   for use in the laboratory. Pharmaceutical compositions comprising
CC   recombinant gelatin are used as vaccines. They are also used to
CC   treat various joint conditions such as arthritis, athrosis and
CC   other conditions related to the degeneration of cartilage and joint
CC   flexibility. Recombinant gelatin is also used in food and beverage
CC   industries. The present sequence is human alpha1 (I) type I collagen
CC   helical domain (residues 179-679). This sequence is a recombinant
CC   gelatin.
XX
SQ   Sequence   501 AA;


  Query Match             100.0%;  Score 333;  DB 22;  Length 501;
  Best Local Similarity   100.0%;  Pred. No. 4.1e-23;
  Matches   59;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     353 eaglpgakgltgspgspgpdgktgppgpagqdgrpgppgppgargqagvmgfpgpkgaa 411


RESULT  12
AAB68057
ID   AAB68057 standard; Protein; 501 AA.
XX
AC   AAB68057;
```

```
XX
DT   09-JUL-2001  (first entry)
XX
DE   Amino acid sequence of a recombinant human gelatin.
XX
KW   Human; gelatin; vaccine; anaphylactic reaction.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 85
FT                   /note= "this residue is given as unknown as it is
FT                          illegible in the specification"
XX
PN   WO200134801-A2.
XX
PD   17-MAY-2001.
XX
PF   10-NOV-2000; 2000WO-US30843.
XX
PR   12-NOV-1999;   99US-0165114.
PR   15-MAY-2000; 2000US-0204437.
XX
PA   (FIBR-) FIBROGEN INC.
XX
PI   Chang RC,  Kivirikko KI,  Neff TB,  Olsen DR,  Polarek JW;
XX
DR   WPI; 2001-308784/32.
XX
PT   Vaccine formulations (I) comprising recombinant human gelatin, useful
PT   for vaccinating against e.g. mumps, measles, rubella, tetanus, rabies
PT   and cholera, the gelatin is non-immunogenic and confers stability at
PT   ambient temperatures -
XX
PS   Claim 11; Page 114-116; 130pp; English.
XX
CC   The present sequence represents a human recombinant gelatin polypeptide.
CC   The recombinant gelatin polypeptide is used to produce vaccine
CC   formulations of the invention. The recombinant human gelatin is
CC   non-immunogenic (therefore reducing anaphylactic reactions) and confers
CC   stability at ambient temperatures. The vaccine formulation comprises a
CC   vaccine formulated for the prevention of a disease selected from vaccinia
CC   virus (small pox), polio virus (Salk and Sabin), mumps, measles, rubella,
CC   diphtheria, tetanus, Varicella-Zoster (chicken pox/shingles), pertussis
CC   (whooping cough), Bacille Calmette-Geurin (BCG, tuberculosis),
CC   haemophillus influenzae meningitis, rabies, cholera, Japanese
CC   encephalitis virus, salmonella typhi, shigella, hepatitis A and B,
CC   adenovirus, yellow fever, foot and mouth disease, herpes simplex virus,
CC   respiratory syncytial virus, rotavirus, Dengue, West Nile virus, turkey
CC   herpes virus (Marek's disease), influenza and/or anthrax.
XX
SQ   Sequence   501 AA;


  Query Match             100.0%;  Score 333;  DB 22;  Length 501;
  Best Local Similarity   100.0%;  Pred. No. 4.1e-23;
  Matches   59;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    353 eaglpgakgltgspgspgpdgktgppgpagqdgrpgppgppgargqagvmgfpgpkgaa 411


RESULT  13
AAE02718
ID   AAE02718 standard; Protein; 662 AA.
XX
AC   AAE02718;
XX
DT   06-AUG-2001  (first entry)
XX
DE   Human alpha1 (I) type I collagen helical domain (residues 531-1192).
XX
KW   Human; recombinant gelatin; binding agent; stabilising agent; emulsifier;
KW   encapsulant; film-forming agent; moisturising agent; thickening agent;
KW   gelling agent; colloidal agent; adhesive agent; gel capsule; photography;
KW   plasma expander; colloidal volume replacement material; graft coating;
KW   medical sponge; medical plug; micro-carrier; edible composition;
KW   protein supplement; fat substitute; nutritional supplement; cell culture;
KW   edible coating; cosmetic; vaccine; therapy; arthritis; athrosis;
KW   cartilage degeneration; joint flexibility; food industry; beverage;
KW   alpha1 (I) type I collagen.
XX
OS   Homo sapiens.
XX
PN   WO200134646-A2.
XX
PD   17-MAY-2001.
XX
PF   10-NOV-2000; 2000WO-US30791.
XX
PR   12-NOV-1999;   99US-0165114.
PR   15-MAY-2000; 2000US-0204437.
XX
PA   (FIBR-) FIBROGEN INC.
XX
PI   Chang RC,  Kivirikko KI,  Neff TB,  Olsen DR,  Polarek JW;
XX
DR   WPI; 2001-329072/34.
XX
PT   Gelatin useful for pharmaceuticals, cosmetics and edible foods, is
PT   prepared recombinantly -
XX
PS   Claim 21; Page 135-137; 137pp; English.
XX
CC   The patent discloses recombinant human gelatin which is useful
CC   in various compositions including binding agents, encapsulants,
CC   stabilising agents, film-forming agents, moisturising agents,
CC   emulsifiers, thickening agents, gelling agents, colloidal agents,
CC   adhesive agents, pharmaceutical compositions, hard gel capsules,
CC   soft gel capsules, plasma expander, colloidal volume replacement
CC   materials, graft coatings, medical sponges, medical plugs,
CC   pharmaceutical stabilisers, micro-carriers, edible compositions,
CC   protein supplements, fat substitutes, nutritional supplements,
CC   edible coatings, photographic compositions, cosmetic compositions,
CC   industrial composition, cell culture compositions and compositions
CC   for use in the laboratory. Pharmaceutical compositions comprising
CC   recombinant gelatin are used as vaccines. They are also used to
CC   treat various joint conditions such as arthritis, athrosis and
CC   other conditions related to the degeneration of cartilage and joint
CC   flexibility. Recombinant gelatin is also used in food and beverage
CC   industries. The present sequence is human alpha1 (I) type I collagen
CC   helical domain (residues 531-1192). This sequence is a recombinant
CC   gelatin.
XX
SQ   Sequence   662 AA;


  Query Match             100.0%;  Score 333;  DB 22;  Length 662;
  Best Local Similarity   100.0%;  Pred. No. 5.3e-23;
  Matches   59;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 eaglpgakgltgspgspgpdgktgppgpagqdgrpgppgppgargqagvmgfpgpkgaa 59


RESULT  14
AAB68072
ID   AAB68072 standard; Protein; 662 AA.
XX
AC   AAB68072;
XX
DT   09-JUL-2001  (first entry)
XX
DE   Amino acid sequence of a recombinant human gelatin.
```

XX
KW Human; gelatin; vaccine; anaphylactic reaction.
XX
OS Homo sapiens.
XX
FH Key Location/Qualifiers
FT Misc-difference 53
FT /note= "this residue is given as unknown as it is
FT illegible in the specification"
XX
PN WO200134801-A2.
XX
PD 17-MAY-2001.
XX
PF 10-NOV-2000; 2000WO-US30843.
XX
PR 12-NOV-1999; 99US-0165114.
PR 15-MAY-2000; 2000US-0204437.
XX
PA (FIBR-) FIBROGEN INC.
XX
PI Chang RC, Kivirikko KI, Neff TB, Olsen DR, Polarek JW;
XX
DR WPI; 2001-308784/32.
XX
PT Vaccine formulations (I) comprising recombinant human gelatin, useful
PT for vaccinating against e.g. mumps, measles, rubella, tetanus, rabies
PT and cholera, the gelatin is non-immunogenic and confers stability at
PT ambient temperatures -
XX
PS Claim 11; Page 128-130; 130pp; English.
XX
CC The present sequence represents a human recombinant gelatin polypeptide.
CC The recombinant gelatin polypeptide is used to produce vaccine
CC formulations of the invention. The recombinant human gelatin is
CC non-immunogenic (therefore reducing anaphylactic reactions) and confers
CC stability at ambient temperatures. The vaccine formulation comprises a
CC vaccine formulated for the prevention of a disease selected from vaccinia
CC virus (small pox), polio virus (Salk and Sabin), mumps, measles, rubella,
CC diphtheria, tetanus, Varicella-Zoster (chicken pox/shingles), pertussis
CC (whooping cough), Bacille Calmette-Geurin (BCG, tuberculosis),
CC haemophillus influenzae meningitis, rabies, cholera, Japanese
CC encephalitis virus, salmonella typhi, shigella, hepatitis A and B,
CC adenovirus, yellow fever, foot and mouth disease, herpes simplex virus,
CC respiratory syncytial virus, rotavirus, Dengue, West Nile virus, turkey
CC herpes virus (Marek's disease), influenza and/or anthrax.
XX
SQ Sequence 662 AA;

Query Match 100.0%; Score 333; DB 22; Length 662;
Best Local Similarity 100.0%; Pred. No. 5.3e-23;
Matches 59; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db 1 eaglpgakgltgspgspgpdgktgppgpagqdgrpgppgppgpargqagvmgfpgpkgaa 59

RESULT 15
AAY84541
ID AAY84541 standard; Protein; 1057 AA.
XX
AC AAY84541;
XX
DT 25-JUL-2000 (first entry)
XX
DE Amino acid sequence of a human collagen 1 (alpha1) protein.
XX
KW Extracellular matrix protein; self aggregation; hydroxylated proline;
KW trans-4-hydroxyproline; 3-hydroxyproline; recombinant protein production;
KW collagen; fibrinogen; fibronectin; post translational hydroxylation.
XX
OS Homo sapiens.
XX
PN EP992586-A2.
XX
PD 12-APR-2000.
XX
PF 07-OCT-1999; 99EP-0119184.
XX
PR 09-OCT-1998; 98US-0169768.
XX
PA (USSU) US SURGICAL CORP.
XX
PI Gruskin EA, Buechter DD, Zhang G, Connolly K;
XX
DR WPI; 2000-259138/23.
DR N-PSDB; AAA12502.
XX
PT Production of extracellular matrix proteins containing
PT 4-trans-hydroxyproline results in native self aggregating proteins,
PT useful on medical implants -
XX
PS Disclosure; Fig 27A-E; 260pp; English.
XX
CC The specification describes a method for producing an extracellular
CC matrix protein or its fragment. The extracellular matrix protein is
CC capable of self aggregating in a cell which does not ordinarily
CC hydroxylated prolines. The method comprises optimising a nucleic acid
CC sequence for expression in the cell by substitution of codons preferred
CC by that cell for naturally occurring codons not preferred by the cell;
CC incorporating the nucleic acid sequence into the cell; and contacting
CC the cell with a hypertonic growth medium containing at least one amino
CC acid, selected from the group consisting of trans-4-hydroxyproline and
CC 3-hydroxyproline to allow at least one of the amino acids to be
CC assimilated into the cell and incorporated into the extracellular matrix
CC protein. The method may be used to make host cells assimilate and
CC incorporate trans-4-hydroxyproline into proteins. This is especially
CC useful in the recombinant production of proteins such as collagen,
CC fibrinogen and fibronectin whose ability to self aggregate and produce
CC functional proteins depends on the post translational hydroxylation of
CC proline. The method is also useful in studying the structure and function
CC of polypeptides which do not normally contain trans-4-hydroxyproline.
CC The present sequence represents a human collagen 1 (alpha1) protein,
CC which may be produced using the method of the invention.
XX
SQ Sequence 1057 AA;

Query Match 100.0%; Score 333; DB 21; Length 1057;
Best Local Similarity 100.0%; Pred. No. 8.2e-23;
Matches 59; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db 370 eaglpgakgltgspgspgpdgktgppgpagqdgrpgppgppgargqagvmgfpgpkgaa 428

RESULT 16
AAY84544
ID AAY84544 standard; Protein; 1057 AA.
XX
AC AAY84544;
XX
DT 25-JUL-2000 (first entry)
XX
DE A human collagen 1 (alpha1) protein helical region.
XX
KW Extracellular matrix protein; self aggregation; hydroxylated proline;
KW trans-4-hydroxyproline; 3-hydroxyproline; recombinant protein production;
KW collagen; fibrinogen; fibronectin; post translational hydroxylation.
XX
OS Homo sapiens.
XX
PN EP992586-A2.

```
XX
PD   12-APR-2000.
XX
PF   07-OCT-1999;   99EP-0119184.
XX
PR   09-OCT-1998;   98US-0169768.
XX
PA   (USSU ) US SURGICAL CORP.
XX
PI   Gruskin EA,  Buechter DD,  Zhang G,  Connolly K;
XX
DR   WPI; 2000-259138/23.
DR   N-PSDB; AAA12503.
XX
PT   Production of extracellular matrix proteins containing
PT   4-trans-hydroxyproline results in native self aggregating proteins,
PT   useful on medical implants -
XX
PS   Example 10; Fig 39A-E; 260pp; English.
XX
CC   The specification describes a method for producing an extracellular
CC   matrix protein or its fragment. The extracellular matrix protein is
CC   capable of self aggregating in a cell which does not ordinarily
CC   hydroxylated prolines. The method comprises optimising a nucleic acid
CC   sequence for expression in the cell by substitution of codons preferred
CC   by that cell for naturally occurring codons not preferred by the cell;
CC   incorporating the nucleic acid sequence into the cell; and contacting
CC   the cell with a hypertonic growth medium containing at least one amino
CC   acid, selected from the group consisting of trans-4-hydroxyproline and
CC   3-hydroxyproline to allow at least one of the amino acids to be
CC   assimilated into the cell and incorporated into the extracellular matrix
CC   protein. The method may be used to make host cells assimilate and
CC   incorporate trans-4-hydroxyproline into proteins. This is especially
CC   useful in the recombinant production of proteins such as collagen,
CC   fibrinogen and fibronectin whose ability to self aggregate and produce
CC   functional proteins depends on the post translational hydroxylation of
CC   proline. The method is also useful in studying the structure and function
CC   of polypeptides which do not normally contain trans-4-hydroxyproline.
CC   The present sequence represents human collagen 1 (alpha1) helical region,
CC   which may be produced using the method of the invention.
XX
SQ   Sequence   1057 AA;


  Query Match             100.0%;  Score 333;  DB 21;  Length 1057;
  Best Local Similarity   100.0%;  Pred. No. 8.2e-23;
  Matches   59;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     370 eaglpgakgltgspgspgpdgktgppgpagqdgrpgppgppgargqagvmgfpgpkgaa 428


RESULT  17
AAY84403
ID   AAY84403 standard; Protein; 1058 AA.
XX
AC   AAY84403;
XX
DT   12-JUL-2000  (first entry)
XX
DE   Amino acid sequence of human type 1 (alpha1) collagen polypeptide.
XX
KW   Alpha1 collagen; 3,4-dehydro-L-proline; epoxidation; 3,4-epoxyproline;
KW   collagen; mussel adhesive protein; bioadhesive.
XX
OS   Homo sapiens.
XX
PN   WO200014201-A1.
XX
PD   16-MAR-2000.
XX
PF   07-SEP-1999;   99WO-US20462.
XX
PR   09-SEP-1998;   98US-0099652.
XX
PA   (USSU ) US SURGICAL CORP.
PA   (PAOL/) PAOLELLA D N.
PA   (GRUS/) GRUSKIN E A.
PA   (BUEC/) BUECHTER D D.
XX
PI   Paolella DN,  Gruskin EA,  Buechter DD;
XX
DR   WPI; 2000-271051/23.
DR   N-PSDB; AAZ99843.
XX
PT   Incorporating non-natural amino acid into polypeptide, useful e.g. for
PT   production of bioadhesives, by epoxidation or substitution of
PT   dehydroproline residues -
XX
PS   Disclosure; Fig 6; 66pp; English.
XX
CC   The present sequence represents a human type 1 (alpha1) collagen protein.
CC   Peptides derived from the protien were used to demonstrate incorporation
CC   of 3,4-dehydro-L-proline into the peptide, using the method of the
CC   invention. The specification describes a method for the incorporation
CC   of non-natural amino acid into a polypeptide. The method comprises
CC   reacting at least one 3,4-dehydroproline residue in the polypeptide
CC   with an epoxidation reagent from a polypeptide containing at least
CC   one 3,4-epoxyproline residue. The method is used for studying the
CC   effects of non-natural amino acids on structure and function of
CC   polypeptides. The method is also useful for commercial production of
CC   collagen or mussel adhesive proteins (which are useful as bioadhesives),
CC   and for incorporating a wide variety of groups, including therapeutic
CC   ligands and biological probes, into polypeptides.
XX
SQ   Sequence   1058 AA;


  Query Match             100.0%;  Score 333;  DB 21;  Length 1058;
  Best Local Similarity   100.0%;  Pred. No. 8.2e-23;
  Matches   59;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     371 eaglpgakgltgspgspgpdgktgppgpagqdgrpgppgppgargqagvmgfpgpkgaa 429


RESULT  18
AAR89472
ID   AAR89472 standard; Protein; 1107 AA.
XX
AC   AAR89472;
XX
DT   01-OCT-1996  (first entry)
XX
DE   Collagen/decorin(aa46-93) fusion protein.
XX
KW   Transforming growth factor; TGF-beta-1; collagen IA; osteogenesis;
KW   bone formation; tissue repair; fusion protein.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Domain          1..1057
FT                   /label= Collagen-IA
FT                   /note= "collagen IA alpha-helical domain"
FT   Peptide         1058..1059
FT                   /label= Linker_peptide
FT   Domain          1060..1107
FT                   /label= Decorin
FT                   /note= "amino acids P46 to G93 of mature
FT                        decorin"
FT   Misc-difference 887
FT                   /note= "unidentified amino acid"
FT   Misc-difference 890
```

```
FT                   /note= "unidentified amino acid"
XX
PN   CA2151547-A.
XX
PD   11-DEC-1995.
XX
PF   12-JUN-1995;   95CA-2151547.
XX
PR   10-JUN-1994;   94US-0259263.
XX
PA   (USSU ) US SURGICAL CORP.
XX
PI   Espino P,  Gruskin EA;
XX
DR   WPI; 1996-140144/15.
DR   N-PSDB; AAT16518.
XX
PT   Chimaeric DNA encoding protein contg. extracellular matrix protein
PT   domain  - and cellular regulatory factor domain, partic. useful as
PT   osteogenic agents, also related vectors, transformed cells and
PT   chimaeric proteins.
XX
PS   Disclosure; Fig 8; 59pp; English.
XX
CC   A fusion protein (AAR89472) comprises the alpha-helical region of
CC   human collagen I(a) linked to amino acids 46-93 of human mature
CC   dermatan sulphate proteoglycan (decorin).  It can be expressed in
CC   Escherichia coli transformants carrying a vector incorporating a
CC   chimeric gene (AAT16518) coding for the fusion.  The decorin binds to
CC   type I collagen and thus affects Elbril formation.  It inhibits
CC   the cell attachment-promoting activity of collagen and fibrinogen
CC   by binding to such molecules near their cell binding sites.  The
CC   collagen moiety provides an integral substratum or scaffolding for
CC   the decorin.  The fusion protein acts to reduce scarring of healing
CC   tissue.
XX
SQ   Sequence   1107 AA;


  Query Match             100.0%;  Score 333;  DB 17;  Length 1107;
  Best Local Similarity   100.0%;  Pred. No. 8.6e-23;
  Matches   59;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
          |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    370 eaglpgakgltgspgspgpdgktgpppgpagqdgrpgppgpppgargqagvmgfpgpkgaa 428


RESULT  19
AAY84540
ID   AAY84540 standard; Protein; 1107 AA.
XX
AC   AAY84540;
XX
DT   25-JUL-2000  (first entry)
XX
DE   Amino acid sequence of a chimeric collagen 1 (alphal)/decorin protein.
XX
KW   Extracellular matrix protein; self aggregation; hydroxylated proline;
KW   trans-4-hydroxyproline; 3-hydroxyproline; recombinant protein production;
KW   collagen; fibrinogen; fibronectin; post translational hydroxylation;
KW   decorin; chimera.
XX
OS   Chimeric - Homo sapiens.
OS   Chimeric - Unidentified.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 858
FT                   /note= "Gly encoded by GCT"
XX
PN   EP992586-A2.
XX
PD   12-APR-2000.
XX
PF   07-OCT-1999;   99EP-0119184.
XX
PR   09-OCT-1998;   98US-0169768.
XX
PA   (USSU ) US SURGICAL CORP.
XX
PI   Gruskin EA,  Buechter DD,  Zhang G,  Connolly K;
XX
DR   WPI; 2000-259138/23.
DR   N-PSDB; AAA12500.
XX
PT   Production of extracellular matrix proteins containing
PT   4-trans-hydroxyproline results in native self aggregating proteins,
PT   useful on medical implants -
XX
PS   Claim 24; Fig 18; 260pp; English.
XX
CC   The specification describes a method for producing an extracellular
CC   matrix protein or its fragment. The extracellular matrix protein is
CC   capable of self aggregating in a cell which does not ordinarily
CC   hydroxylated prolines. The method comprises optimising a nucleic acid
CC   sequence for expression in the cell by substitution of codons preferred
CC   by that cell for naturally occurring codons not preferred by the cell;
CC   incorporating the nucleic acid sequence into the cell; and contacting
CC   the cell with a hypertonic growth medium containing at least one amino
CC   acid, selected from the group consisting of trans-4-hydroxyproline and
CC   3-hydroxyproline to allow at least one of the amino acids to be
CC   assimilated into the cell and incorporated into the extracellular matrix
CC   protein. The method may be used to make host cells assimilate and
CC   incorporate trans-4-hydroxyproline into proteins. This is especially
CC   useful in the recombinant production of proteins such as collagen,
CC   fibrinogen and fibronectin whose ability to self aggregate and produce
CC   functional proteins depends on the post translational hydroxylation of
CC   proline. The method is also useful in studying the structure and function
CC   of polypeptides which do not normally contain trans-4-hydroxyproline.
CC   The present sequence represents a chimeric collagen 1 (alphal)/decorin
CC   protein, which may be produced using the method of the invention.
XX
SQ   Sequence   1107 AA;


  Query Match             100.0%;  Score 333;  DB 21;  Length 1107;
  Best Local Similarity   100.0%;  Pred. No. 8.6e-23;
  Matches   59;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
          |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    370 eaglpgakgltgspgspgpdgktgpppgpagqdgrpgppgpppgargqagvmgfpgpkgaa 428


RESULT  20
AAR89469
ID   AAR89469 standard; Protein; 1169 AA.
XX
AC   AAR89469;
XX
DT   01-OCT-1996  (first entry)
XX
DE   Collagen/BMP-2B fusion protein.
XX
KW   Bone morphogenic protein 2B; BMP-2B; collagen IA; osteogenesis;
KW   fusion protein.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Domain          1..1057
FT                   /label= Collagen-IA
FT                   /note= "collagen IA alpha-helical domain"
FT   Peptide         1058..1059
FT                   /label= Linker_peptide
FT   Domain          1060..1169
```

```
FT                   /label= BMP-2B
FT                   /note= "human mature BMP-2B"
FT   Misc-difference 887
FT                   /note= "unidentified amino acid"
FT   Misc-difference 890
FT                   /note= "unidentified amino acid"
XX
PN   CA2151547-A.
XX
PD   11-DEC-1995.
XX
PF   12-JUN-1995;   95CA-2151547.
XX
PR   10-JUN-1994;   94US-0259263.
XX
PA   (USSU ) US SURGICAL CORP.
XX
PI   Espino P,  Gruskin EA;
XX
DR   WPI; 1996-140144/15.
DR   N-PSDB; AAT16515.
XX
PT   Chimaeric DNA encoding protein contg. extracellular matrix protein
PT   domain  - and cellular regulatory factor domain, partic. useful as
PT   osteogenic agents, also related vectors, transformed cells and
PT   chimaeric proteins.
XX
PS   Disclosure; Fig 5; 59pp; English.
XX
CC   A fusion protein (AAR89469) comprises the alpha-helical region of
CC   human collagen I(a) linked to the human mature bone morphogenic
CC   protein 2B (BMP2B).  It can be expressed in Escherichia coli
CC   transformants carrying a vector incorporating a chimeric gene
CC   (AAT16515) coding for the fusion.  The BMP moiety induces
CC   osteogenesis, while the collagen moiety provides an integral
CC   substratum or scaffolding for the BMP and cells involved in
CC   reconstruction and growth.  The fusion protein provides sustained
CC   release and delivery of BMP to a target tissue.
XX
SQ   Sequence   1169 AA;


  Query Match             100.0%;  Score 333;  DB 17;  Length 1169;
  Best Local Similarity   100.0%;  Pred. No. 9.1e-23;
  Matches   59;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
          |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    370 eaglpgakgltgspgspgpdgktgppgpagqdgrpgppgppgpargqagvmgfpgpkgaa 428


RESULT  21
AAY84537
ID   AAY84537 standard; Protein; 1169 AA.
XX
AC   AAY84537;
XX
DT   25-JUL-2000  (first entry)
XX
DE   Amino acid sequence of a chimeric collagen 1 (alpha1)/BMP-2B protein.
XX
KW   Extracellular matrix protein; self aggregation; hydroxylated proline;
KW   trans-4-hydroxyproline; 3-hydroxyproline; recombinant protein production;
KW   collagen; fibrinogen; fibronectin; post translational hydroxylation; ss.
KW   bone morphogenic protein; BMP-2B; chimera.
XX
OS   Chimeric - Homo sapiens.
OS   Chimeric - Unidentified.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 677
FT                   /note= "Ala encoded by G"
FT   Misc-difference 887
FT                   /note= "unspecified amino acid encoded by CT"
FT   Misc-difference 890
FT                   /note= "unspecified amino acid encoded by CT"
XX
PN   EP992586-A2.
XX
PD   12-APR-2000.
XX
PF   07-OCT-1999;   99EP-0119184.
XX
PR   09-OCT-1998;   98US-0169768.
XX
PA   (USSU ) US SURGICAL CORP.
XX
PI   Gruskin EA,  Buechter DD,  Zhang G,  Connolly K;
XX
DR   WPI; 2000-259138/23.
DR   N-PSDB; AAA12497.
XX
PT   Production of extracellular matrix proteins containing
PT   4-trans-hydroxyproline results in native self aggregating proteins,
PT   useful on medical implants -
XX
PS   Claim 22; Fig 13; 260pp; English.
XX
CC   The specification describes a method for producing an extracellular
CC   matrix protein or its fragment. The extracellular matrix protein is
CC   capable of self aggregating in a cell which does not ordinarily
CC   hydroxylated prolines. The method comprises optimising a nucleic acid
CC   sequence for expression in the cell by substitution of codons preferred
CC   by that cell for naturally occurring codons not preferred by the cell;
CC   incorporating the nucleic acid sequence into the cell; and contacting
CC   the cell with a hypertonic growth medium containing at least one amino
CC   acid, selected from the group consisting of trans-4-hydroxyproline and
CC   3-hydroxyproline to allow at least one of the amino acids to be
CC   assimilated into the cell and incorporated into the extracellular matrix
CC   protein. The method may be used to make host cells assimilate and
CC   incorporate trans-4-hydroxyproline into proteins. This is especially
CC   useful in the recombinant production of proteins such as collagen,
CC   fibrinogen and fibronectin whose ability to self aggregate and produce
CC   functional proteins depends on the post translational hydroxylation of
CC   proline. The method is also useful in studying the structure and function
CC   of polypeptides which do not normally contain trans-4-hydroxyproline.
CC   The present sequence represents a chimeric collagen 1 (alphal)/bone
CC   morphogenic protein-2B (bmp-2b) protein, which may be produced using the
CC   method of the invention.
XX
SQ   Sequence   1169 AA;


  Query Match             100.0%;  Score 333;  DB 21;  Length 1169;
  Best Local Similarity   100.0%;  Pred. No. 9.1e-23;
  Matches   59;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
          |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    370 eaglpgakgltgspgspgpdgktgppgpagqdgrpgppgppgpargqagvmgfpgpkgaa 428


RESULT  22
AAR89470
ID   AAR89470 standard; Protein; 1171 AA.
XX
AC   AAR89470;
XX
DT   01-OCT-1996  (first entry)
XX
DE   Collagen/TGF-beta-1 fusion protein.
XX
KW   Transforming growth factor; TGF-beta-1; collagen IA; osteogenesis;
KW   bone formation; tissue repair; fusion protein.
XX
OS   Synthetic.
```

```
XX
FH   Key             Location/Qualifiers
FT   Domain          1..1057
FT                   /label= Collagen-IA
FT                   /note= "collagen IA alpha-helical domain"
FT   Peptide         1058..1059
FT                   /label= Linker_peptide
FT   Domain          1060..1171
FT                   /label= TGF-beta-1
FT                   /note= "human mature TFF-beta-1"
FT   Misc-difference 887
FT                   /note= "unidentified amino acid"
FT   Misc-difference 890
FT                   /note= "unidentified amino acid"
XX
PN   CA2151547-A.
XX
PD   11-DEC-1995.
XX
PF   12-JUN-1995;   95CA-2151547.
XX
PR   10-JUN-1994;   94US-0259263.
XX
PA   (USSU ) US SURGICAL CORP.
XX
PI   Espino P,  Gruskin EA;
XX
DR   WPI; 1996-140144/15.
DR   N-PSDB; AAT16516.
XX
PT   Chimaeric DNA encoding protein contg. extracellular matrix protein
PT   domain  - and cellular regulatory factor domain, partic. useful as
PT   osteogenic agents, also related vectors, transformed cells and
PT   chimaeric proteins.
XX
PS   Disclosure; Fig 6; 59pp; English.
XX
CC   A fusion protein (AAR89470) comprises the alpha-helical region of
CC   human collagen I(a) linked to the human mature transforming
CC   growth factor beta-1 (TGF-beta-1).  It can be expressed in
CC   Escherichia coli transformants carrying a vector incorporating a
CC   chimeric gene (AAT16516) coding for the fusion.  The TGF-beta-
CC   moiety increases efficacy of the body's normal soft tissue
CC   repair response and also induces osteogenesis.  The collagen
CC   moiety provides an integral substratum or scaffolding for the
CC   TGF and cells involved in reconstruction and growth.  The fusion
CC   protein provides sustained release and delivery of TGF-beta-1
CC   to a target tissue.
XX
SQ   Sequence   1171 AA;
```

```
  Query Match             100.0%;  Score 333;  DB 17;  Length 1171;
  Best Local Similarity   100.0%;  Pred. No. 9.1e-23;
  Matches   59;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     370 eaglpgakgltgspgspgpdgktgppgpagqdgrpgppgppgargqagvmgfpgpkgaa 428


RESULT  23
AAY84538
ID   AAY84538 standard; Protein; 1171 AA.
XX
AC   AAY84538;
XX
DT   25-JUL-2000  (first entry)
XX
DE   A chimeric collagen 1 (alpha1)/TGF-beta1 protein.
XX
KW   Extracellular matrix protein; self aggregation; hydroxylated proline;
KW   trans-4-hydroxyproline; 3-hydroxyproline; recombinant protein production;
KW   collagen; fibrinogen; fibronectin; post translational hydroxylation; ss.
KW   transforming growth factor-beta1; TGF-beta1; chimera.
XX
OS   Chimeric - Homo sapiens.
OS   Chimeric - Unidentified.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 858
FT                   /note= "Gly encoded by GCT"
XX
PN   EP992586-A2.
XX
PD   12-APR-2000.
XX
PF   07-OCT-1999;   99EP-0119184.
XX
PR   09-OCT-1998;   98US-0169768.
XX
PA   (USSU ) US SURGICAL CORP.
XX
PI   Gruskin EA,  Buechter DD,  Zhang G,  Connolly K;
XX
DR   WPI; 2000-259138/23.
DR   N-PSDB; AAA12498.
XX
PT   Production of extracellular matrix proteins containing
PT   4-trans-hydroxyproline results in native self aggregating proteins,
PT   useful on medical implants -
XX
PS   Claim 23; Fig 15; 260pp; English.
XX
CC   The specification describes a method for producing an extracellular
CC   matrix protein or its fragment. The extracellular matrix protein is
CC   capable of self aggregating in a cell which does not ordinarily
CC   hydroxylated prolines. The method comprises optimising a nucleic acid
CC   sequence for expression in the cell by substitution of codons preferred
CC   by that cell for naturally occurring codons not preferred by the cell;
CC   incorporating the nucleic acid sequence into the cell; and contacting
CC   the cell with a hypertonic growth medium containing at least one amino
CC   acid, selected from the group consisting of trans-4-hydroxyproline and
CC   3-hydroxyproline to allow at least one of the amino acids to be
CC   assimilated into the cell and incorporated into the extracellular matrix
CC   protein. The method may be used to make host cells assimilate and
CC   incorporate trans-4-hydroxyproline into proteins. This is especially
CC   useful in the recombinant production of proteins such as collagen,
CC   fibrinogen and fibronectin whose ability to self aggregate and produce
CC   functional proteins depends on the post translational hydroxylation of
CC   proline. The method is also useful in studying the structure and function
CC   of polypeptides which do not normally contain trans-4-hydroxyproline.
CC   The present sequence represents chimeric collagen 1 (alpha1)/transforming
CC   growth factor-beta1 (TGF-beta1) protein, which may be produced using the
CC   method of the invention.
XX
SQ   Sequence   1171 AA;
```

```
  Query Match             100.0%;  Score 333;  DB 21;  Length 1171;
  Best Local Similarity   100.0%;  Pred. No. 9.1e-23;
  Matches   59;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     370 eaglpgakgltgspgspgpdgktgppgpagqdgrpgppgppgargqagvmgfpgpkgaa 428


RESULT  24
AAR71701
ID   AAR71701 standard; protein; 1341 AA.
XX
AC   AAR71701;
XX
DT   17-OCT-1995  (first entry)
XX
```

```
DE   Collagen alpha 1 (I) chain precursor.
XX
KW   Collagen; antibody; immunoassay; metabolism; diagnosis; monitoring;
KW   disorder; osteoporosis; metastatic progression; Paget's disease;
KW   hyperthyroidism; bone; resorption; rheumatoid arthritis;
KW   osteoarthritis; vasculitis syndrome.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 2028
FT                   /note= "Unidentified amino acid."
XX
PN   WO9508115-A.
XX
PD   23-MAR-1995.
XX
PF   19-SEP-1994;   94WO-DK00348.
XX
PR   17-SEP-1993;   93DK-0001040.
XX
PA   (OSTE-) OSTEOMETER AS.
XX
PI   Bonde M,  Qvist P;
XX
DR   WPI; 1995-131456/17.
XX
PT   Assaying collagen fragments in body fluid by immunoassay - using
PT   antibodies raised against synthetic peptide(s) contg. potential
PT   crosslinking sites, to diagnose and monitor disorders of collagen
PT   metabolism, e.g. osteoporosis.
XX
PS   Disclosure (Appendix A); Page 49; 87pp; English.
XX
CC   Determination of collagen fragments in body fluids can be achieved
CC   by immunoassay using antibodies directed against synthetic peptides
CC   derived from collagen which contain sites of potential crosslinking.
CC   The method is used to diagnose and monitor treatment of disorders of
CC   collagen metabolism (degredation of type I collagen may indicate
CC   osteoporosis, metastatic progression, Paget's disease,
CC   hyperthyroidism or other conditions involving excessive bone
CC   resorption; degredation of type II collagen may indicate rheumatoid
CC   arthritis or osteoarthritis; and of type III collagen, vaculitis
CC   syndrome).  The method can also be used to assess the toxicity of a
CC   compound and to test drugs for their effect on collagen metabolism.
XX
SQ   Sequence   1341 AA;


  Query Match             100.0%;  Score 333;  DB 16;  Length 1341;
  Best Local Similarity   100.0%;  Pred. No. 1e-22;
  Matches   59;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    408 eaglpgakgltgspgspgpdgktgppgpagqdgrpgppgppgpargqagvmgfpgpkgaa 466


RESULT  25
AAY96122
ID   AAY96122 standard; Peptide; 1341 AA.
XX
AC   AAY96122;
XX
DT   19-DEC-2000  (first entry)
XX
DE   Collagen type I alpha-1.
XX
KW   Collagen type I; osteoporosis; bone resportion; Paget's disease;
KW   hyperparathyroidism; metastasis; assay; diagnosis.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 924
FT                   /note= "unidentified residue"
FT   Misc-difference 927
FT                   /note= "unidentified residue"
FT   Misc-difference 1127
FT                   /note= "unidentified residue"
FT   Misc-difference 1268
FT                   /note= "unidentified residue"
XX
PN   US6110689-A.
XX
PD   29-AUG-2000.
XX
PF   04-NOV-1997;   97US-0963825.
XX
PR   21-JAN-1994;   94US-0187319.
XX
PA   (OSTE-) OSTEOMETER AS.
XX
PI   Bonde M,  Qvist P;
XX
DR   WPI; 2000-586349/55.
XX
PT   Assaying type I collagen fragments for diagnosing osteoporosis in
PT   postmenopausal woman, involves contacting body fluid with synthetic
PT   collagen peptide and antibody and quantifying by competitive binding
PT   assay -
XX
PS   Disclosure; Column 23-37; 41pp; English.
XX
CC   The present sequence is that of human type I collagen alpha-1.
CC   The invention is based on the discovery of the presence of
CC   particular collagen fragments in body fluids of patients compared
CC   with those of healthy subjects.  These fragments are generated
CC   upon collagen degradation and are partly characterised by the
CC   presence of potential sites for crosslinking.  A method for
CC   assaying collagen fragments in a body fluid sample is based on the
CC   competitive binding to immunological binding partners of collagen
CC   fragments in the sample and of synthetic peptides derived from
CC   collagen and containing crosslinkable sites (see AAY96105-11).  When
CC   considering the degradation of type I collagen, the assay can be
CC   used as a means of identifying excessive bone resportion, indicating
CC   the presence of osteoporosis or the metastatic progress of a
CC   malignancy.  Other conditions characterized by excessive bone
CC   resportion include Paget's disease and hyperparathyroidism.
XX
SQ   Sequence   1341 AA;


  Query Match             100.0%;  Score 333;  DB 21;  Length 1341;
  Best Local Similarity   100.0%;  Pred. No. 1e-22;
  Matches   59;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    407 eaglpgakgltgspgspgpdgktgppgpagqdgrpgppgppgpargqagvmgfpgpkgaa 465


RESULT  26
AAR89471
ID   AAR89471 standard; Protein; 1388 AA.
XX
AC   AAR89471;
XX
DT   01-OCT-1996  (first entry)
XX
DE   Collagen/decorin fusion protein.
XX
KW   Transforming growth factor; TGF-beta-1; collagen IA; osteogenesis;
KW   bone formation; tissue repair; fusion protein.
XX
OS   Synthetic.
```

```
XX
FH   Key             Location/Qualifiers
FT   Domain          1..1057
FT                   /label= Collagen-IA
FT                   /note= "collagen IA alpha-helical domain"
FT   Peptide         1058..1059
FT                   /label= Linker_peptide
FT   Domain          1060..1388
FT                   /label= Decorin
FT   Misc-difference 887
FT                   /note= "unidentified amino acid"
FT   Misc-difference 890
FT                   /note= "unidentified amino acid"
XX
PN   CA2151547-A.
XX
PD   11-DEC-1995.
XX
PF   12-JUN-1995;   95CA-2151547.
XX
PR   10-JUN-1994;   94US-0259263.
XX
PA   (USSU ) US SURGICAL CORP.
XX
PI   Espino P,  Gruskin EA;
XX
DR   WPI; 1996-140144/15.
DR   N-PSDB; AAT16517.
XX
PT   Chimaeric DNA encoding protein contg. extracellular matrix protein
PT   domain  - and cellular regulatory factor domain, partic. useful as
PT   osteogenic agents, also related vectors, transformed cells and
PT   chimaeric proteins.
XX
PS   Disclosure; Fig 7; 59pp; English.
XX
CC   A fusion protein (AAR89471) comprises the alpha-helical region of
CC   human collagen I(a) linked to human dermatan sulphate proteoglycan
CC   (decorin).  It can be expressed in Escherichia coli transformants
CC   carrying a vector incorporating a chimeric gene (AAT16517) coding for
CC   the fusion.  The decorin binds to type I collagen and thus affects
CC   Elbril formation.  It inhibits the cell attachment-promoting
CC   activity of collagen and fibrinogen by binding to such molecules
CC   near their cell binding sites.  The collagen moiety provides an
CC   integral substratum or scaffolding for the decorin.  The fusion
CC   protein acts to reduce scarring of healing tissue.
XX
SQ   Sequence   1388 AA;


  Query Match            100.0%;  Score 333;  DB 17;  Length 1388;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-22;
  Matches   59;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    370 eaglpgakgltgspgspgpdgktgppgpagqdgrpgppgppgargqagvmgfpgpkgaa 428


RESULT  27
AAY56800
ID   AAY56800 standard; protein; 1411 AA.
XX
AC   AAY56800;
XX
DT   27-MAR-2000  (first entry)
XX
DE   Human preproalpha 1 (I) collagen.
XX
KW   Fibrillar collagen; C propeptide; SSAD; telopeptide; gelatin;
KW   sequence selection and alignment domain; prosthetic implant;
KW   foodstuff; medicine; type I collagen; human.
XX
OS   Homo sapiens.
XX
PN   EP967226-A2.
XX
PD   29-DEC-1999.
XX
PF   04-MAY-1999;   99EP-0303470.
XX
PR   08-MAY-1998;   98US-0084828.
PR   10-APR-1999;   99US-0289578.
XX
PA   (COHE-) COHESION TECHNOLOGIES INC.
XX
PI   Olsen DR,  Hitzeman RA,  Chisholm GE;
XX
DR   WPI; 2000-074666/07.
XX
PT   New method for production of fibrillar collagen, useful for preparing
PT   telopeptide collagen fibrils and gelatin -
XX
PS   Example 1; Fig 3A-B; 30pp; English.
XX
CC   The invention provides a method for the production of fibrillar collagen.
CC   The method comprises: (a) culturing a recombinant host cell comprising a
CC   DNA encoding a fibrillar collagen monomer lacking a C  propeptide SSAD
CC   (sequence selection and alignment domain); and (b) producing the
CC   fibrillar collagen. The methods are used to produce fibrillar collagen,
CC   from which telopeptide collagen fibrils can be derived. Host cells,
CC   comprising DNA encoding a collagen monomer lacking SSAD or N propeptide
CC   is used to produce gelatin. Collagen is used in biological research
CC   as a substrate for in vitro cell culture and as a component of
CC   biocompatible materials for use in prosthetic implants, sustained drug
CC   release matrices, artificial skin and wound dressing and healing devices.
CC   Gelatin is particularly useful for foodstuffs and medicine, for coating
CC   tablets and making capsules. The methods, comprising the use of collagen
CC   monomers lacking the N and/or C propeptides, result in a large increase
CC   in the production of type I collagen. The present sequence represents
CC   the human preproalpha 1 (I) collagen (GenBank Accn no: AF017178).
XX
SQ   Sequence   1411 AA;


  Query Match            100.0%;  Score 333;  DB 21;  Length 1411;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-22;
  Matches   59;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    528 eaglpgakgltgspgspgpdgktgppgpagqdgrpgppgppgargqagvmgfpgpkgaa 586


RESULT  28
AAE02535
ID   AAE02535 standard; Protein; 1449 AA.
XX
AC   AAE02535;
XX
DT   10-AUG-2001  (first entry)
XX
DE   Porcine alpha1(I) collagen.
XX
KW   Porcine; alpha1(I) collagen; gelatin; cytostatic; viral infection;
KW   pharmaceutical; food industry; cosmetic; autoimmune disorder; vaccine;
KW   medical; arterial sealant; bone graft; dermal implant; haemostat; cancer;
KW   rheumatoid arthritis; beverage; photographic application.
XX
OS   Sus scrofa.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 829..830
FT                   /note= "Encoded by ggcgaacctggtgatgctggtgctaaaggcgatg
FT                   ctggtccccccggccctgctgga"
XX
```

PN WO200134647-A2.
XX
PD 17-MAY-2001.
XX
PF 10-NOV-2000; 2000WO-US30792.
XX
PR 12-NOV-1999; 99US-0439058.
PR 10-NOV-2000; 2000US-0439058.
XX
PA (FIBR-) FIBROGEN INC.
XX
PI Bell MP, Neff TB, Polarek JW, Seeley TW;
XX
DR WPI; 2001-335911/35.
DR N-PSDB; AAD06576.
XX
PT Novel isolated and purified bovine or porcine collagens and gelatins
PT useful in medical, pharmaceutical, food and cosmetic industries, as
PT vaccine, and for treating autoimmune disorders, infections and cancer
PT -
XX
PS Example 3; Fig 8; 168pp; English.
XX
CC The present sequence is porcine alpha1(I) collagen. The present
CC invention relates to recombinant synthesis of collagens and gelatins
CC derived from animals. Collagen is useful in medical, pharmaceutical,
CC food and cosmetic industries. Collagen is an important component of
CC arterial sealants, bone grafts, drug delivery system, dermal implants,
CC haemostats, and incontinence implants, and for treating autoimmune
CC disorders such as rheumatoid arthritis. Collagen is useful in food
CC products such as sausage casings, and in cosmetics or facial and skin
CC products such as moisturisers. Recombinant gelatin is useful in vaccine
CC formulations for treating viral infections, autoimmune diseases and
CC cancer. Gelatin is useful in the manufacture or as a component of
CC various pharmaceutical and medical devices and products, in food and
CC beverage industries, in hair care and skin care products, as a glue or
CC adhesive in various manufacturing processes, as a light-sensitive coating
CC in various electronic devices, as photoresist base in photolithographic
CC processes, in printing and photographic applications, in laboratory
CC application, and as a component in various gels used for biochemical and
CC electrophoretic analysis, including enzymographic gels.
XX
SQ Sequence 1449 AA;

Query Match 100.0%; Score 333; DB 22; Length 1449;
Best Local Similarity 100.0%; Pred. No. 1.1e-22;
Matches 59; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db 533 eaglpgakgltgspgspgpdgktgppgpagqdgrpgppgppgpargqagvmgfpgpkgaa 591

RESULT 29
AAE02532
ID AAE02532 standard; Protein; 1463 AA.
XX
AC AAE02532;
XX
DT 10-AUG-2001 (first entry)
XX
DE Bovine alpha1(I) collagen.
XX
KW Bovine; alpha1(I) collagen; gelatin; cytostatic; viral infection;
KW pharmaceutical; food industry; cosmetic; autoimmune disorder; vaccine;
KW medical; arterial sealant; bone graft; dermal implant; haemostat; cancer;
KW rheumatoid arthritis; beverage; photographic application.
XX
OS Bos sp.
XX
FH Key Location/Qualifiers
FT Misc-difference 627
FT /note= "Encoded by CT"
XX
PN WO200134647-A2.
XX
PD 17-MAY-2001.
XX
PF 10-NOV-2000; 2000WO-US30792.
XX
PR 12-NOV-1999; 99US-0439058.
PR 10-NOV-2000; 2000US-0439058.
XX
PA (FIBR-) FIBROGEN INC.
XX
PI Bell MP, Neff TB, Polarek JW, Seeley TW;
XX
DR WPI; 2001-335911/35.
DR N-PSDB; AAD06573.
XX
PT Novel isolated and purified bovine or porcine collagens and gelatins
PT useful in medical, pharmaceutical, food and cosmetic industries, as
PT vaccine, and for treating autoimmune disorders, infections and cancer
PT -
XX
PS Claim 6; Fig 2; 168pp; English.
XX
CC The present sequence is bovine alpha1(I) collagen. The present
CC invention relates to recombinant synthesis of collagens and gelatins
CC derived from animals. Collagen is useful in medical, pharmaceutical,
CC food and cosmetic industries. Collagen is an important component of
CC arterial sealants, bone grafts, drug delivery system, dermal implants,
CC haemostats, and incontinence implants, and for treating autoimmune
CC disorders such as rheumatoid arthritis. Collagen is useful in food
CC products such as sausage casings, and in cosmetics or facial and skin
CC products such as moisturisers. Recombinant gelatin is useful in vaccine
CC formulations for treating viral infections, autoimmune diseases and
CC cancer. Gelatin is useful in the manufacture or as a component of
CC various pharmaceutical and medical devices and products, in food and
CC beverage industries, in hair care and skin care products, as a glue or
CC adhesive in various manufacturing processes, as a light-sensitive coating
CC in various electronic devices, as photoresist base in photolithographic
CC processes, in printing and photographic applications, in laboratory
CC application, and as a component in various gels used for biochemical and
CC electrophoretic analysis, including enzymographic gels.
XX
SQ Sequence 1463 AA;

Query Match 100.0%; Score 333; DB 22; Length 1463;
Best Local Similarity 100.0%; Pred. No. 1.1e-22;
Matches 59; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db 530 eaglpgakgltgspgspgpdgktgppgpagqdgrpgppgppgpargqagvmgfpgpkgaa 588

RESULT 30
AAW68485
ID AAW68485 standard; Protein; 1464 AA.
XX
AC AAW68485;
XX
DT 08-DEC-1998 (first entry)
XX
DE Human recombinant collagen protein.
XX
KW Primer; PCR; amplification; human; collagen; mammal; plant; prosthesis;
KW cardiac valve; ligament; tendon; skin; gingival implant; perfumes;
KW nerve regeneration; antibiotic; growth factor; cancer; inflammatory;
KW gelatin; glue; food.
XX
OS Synthetic.
OS Homo sapiens.

```
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..22
FT                   /note= "signal peptide"
FT   Protein         23..999
FT                   /note= "mature protein"
FT   Cleavage-site   161
FT                   /note= "cleavage site for aminopeptidase"
FT   Cleavage-site   1218
FT                   /note= "cleavage site for carboxypeptidase"
XX
PN   WO9827202-A1.
XX
PD   25-JUN-1998.
XX
PF   17-DEC-1997;   97WO-FR02331.
XX
PR   17-DEC-1996;   96FR-0016224.
XX
PA   (BIOC-) BIOCEM SA.
XX
PI   Bournat P,  Comte J,  Exposito JY,  Garrone R,  Gruber V;
PI   Merot B,  Ruggiero F;
XX
DR   WPI; 1998-362771/31.
DR   N-PSDB; AAV60814.
XX
PT   New recombinant nucleic acid for expressing collagen or derivatives
PT   in plants - useful as, e.g. bio-materials and in therapeutic,
PT   cosmetic and odontological compositions
XX
PS   Disclosure; Fig 7; 138pp; French.
XX
CC   The invention relates to the production of mammalian collagen in plants.
CC   2 clones: alpha3 and alpha22, spanning the human collagen type I gene
CC   were isolated from a MG-63 osteosarcoma library.  Clone alpha3 contained
CC   83 bp of the 5' untranslated region and the first 1920 bp of coding
CC   sequence, whereas clone alpha22 contained sequence encoding amino acids
CC   171-1454 of the protein and around 500 bp of the 3' untranslated region.
CC   The 2 clones were used to generate a number of fragments which were used
CC   to construct composite sequences encoding variant collagen molecules.
CC   The fragments are: (A) containing nucleotides (nt) -4 to 479;
CC   (B) containing TAA upstream of the sequence encoding the PRS
CC   (pathogenesis-related protein S) signal peptide and bases 66-77 from the
CC   sequence encoding the N-terminus of the pro-collagen amino propeptide
CC   domain; (C) the whole of the amino propeptide domain (nt 72-479); (D) all
CC   of the amino-telopeptide domain (nt 474-534) and the N-terminus of the
CC   helicoidal region (nt 535-1920); (E) the DraIII-BamHI fragment
CC   (1709-2808) of alpha22, encoding aa 567-936 of the central helicoidal
CC   domain; (F) the BamHI-EcoRI (2803-4362) region of alpha22, encoding
CC   aa 936-1192 in the central helicoidal domain and aa 1193-1454 in the
CC   C-propeptide domain; (G) the C-terminus of the C-propeptide domain
CC   (aa 1346-1464) plus stop codons, and (H) as G but encoding aa 1343-1401
CC   and also including the KDEL motif for retention in the ER.  This sequence
CC   represents a recombinant human collagen.  The encoding gene was
CC   constructed from fragments (A), (D), (E), (F) and (G).  The recombinant
CC   gene is used for expression of mammalian collagen in plant cells.  The
CC   transformed plants, their extracts and parts are useful as biomaterials
CC   (haemostatic compresses, sponges or bandages) and in pharmaceutical,
CC   medical, odontological, cosmetic and biotechnological compositions (e.g.
CC   as prostheses for cardiac valves, ligaments or tendons; skin substitutes;
CC   gingival implants; microcapsules for perfumes; guide tubes for nerve
CC   regeneration; slow release products for antibiotics, growth factors,
CC   anticancer agents or anti-inflammatories; surgical thread and components
CC   of ointments).  They are suitable for treating any disorder related to
CC   collagen dysfunction and gelatin, produced from collagen, is used to
CC   produce glues, surgical prostheses and foods.
XX
SQ   Sequence   1464 AA;

  Query Match             100.0%;  Score 333;  DB 19;  Length 1464;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-22;
  Matches   59;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     531 eaglpgakgltgspgspgpdgktgppgpagqdgrpgppgppgpargqagvmgfpgpkgaa 589


RESULT  31
AAU14136
ID   AAU14136 standard; Protein; 1464 AA.
XX
AC   AAU14136;
XX
DT   24-OCT-2001  (first entry)
XX
DE   Human novel protein #7.
XX
KW   Human; novel protein; Antianaemic; osteopathic; antiinflammatory;
KW   immunomodulatory; cytostatic; neuroprotective; vulnerary; nootropic;
KW   anticonvulsant; antiarthritic; cerebroprotective; antifungal; antiviral;
KW   antibacterial; antiallergic; dermatological; haemostatic; antiasthmatic;
KW   thrombolytic; immunogen; antibody; gene therapy; neurological disorder;
KW   Parkinson's disease; inflammatory disorder; cancer; asthma; osteoporosis;
KW   tissue regeneration; immune disorder.
XX
OS   Homo sapiens.
XX
PN   WO200155437-A2.
XX
PD   02-AUG-2001.
XX
PF   25-JAN-2001; 2001WO-US02623.
XX
PR   25-JAN-2000; 2000US-0491404.
XX
PA   (HYSE-) HYSEQ INC.
XX
PI   Tang YT,  Liu C,  Drmanac RT;
XX
DR   WPI; 2001-451939/48.
DR   N-PSDB; AAS22441.
XX
PT   Isolated polypeptides useful for treating anti-inflammatory diseases,
PT   nervous system disorders, and for regenerating bone and cartilage -
XX
PS   Example 4; Page 525-527; 894pp; English.
XX
CC   The invention relates to polynucleotides encoding novel human
CC   proteins or their active domains. The polypeptides, polynucleotides and
CC   antibodies raised against the polypeptides are used in a method of
CC   treatment of a mammal and prevention of disorders caused by the aberrant
CC   protein expression or activity.  The polypeptides can be used as
CC   molecular weight markers, food supplements, and in antibody production.
CC   The polypeptides are used to identify compounds which bind to the
CC   polypeptides. Polynucleotides of the invention are used as probes and
CC   primers, for sequencing, for chromosome or gene mapping, in the
CC   production of recombinant proteins, and in generating anti-sense DNA or
CC   RNA and in gene therapy.  Polypeptides of the invention can be used to
CC   target drugs to a tumour, in assays to determine biological activity, to
CC   raise antibodies/elicit an immune response, to determine quantitative
CC   protein levels, as tissue markers, and to isolate receptors or ligands.
CC   Polypeptides of the invention may also be useful in treating platelet
CC   disorders, stem cell disorders, regenerating bone, cartilage, tendon,
CC   ligament and/or nerve tissue, wound healing, treating burns, promoting
CC   the proliferation, differentiation and survival of stem cells, as a
CC   contraceptive, treating osteoporosis and osteoarthritis, anaemia,
CC   Alzheimer's, Parkinson's and Huntington's diseases, amylotrophic lateral
CC   sclerosis, stroke, immune deficiencies resulting from bacterial, viral or
CC   fungal infection or from autoimmunity, cancer, allergy, asthma,
CC   graft-versus-host disease, eczema, haemophilia, thrombosis,
CC   anti-inflammatory diseases, nervous system disorders, and infection.
CC   The present sequence represents a protein of the invention.
XX
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```
SQ   Sequence   1464 AA;

  Query Match            100.0%;  Score 333;  DB 22;  Length 1464;
  Best Local Similarity  100.0%;  Pred. No. 1.1e-22;
  Matches   59;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    531 eaglpgakgltgspgspgpdgktgpppgpagqdgrpgpppgppgargqagvmgfpgpkgaa 589


RESULT  32
AAB82454
ID   AAB82454 standard; Protein; 1464 AA.
XX
AC   AAB82454;
XX
DT   22-AUG-2001  (first entry)
XX
DE   Human pro-alpha-1 chain of type I procollagen.
XX
KW   COL1A1 gene; collagen; procollagen; human.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..22
FT                   /label= Signal_peptide
FT   Protein         23..1464
FT                   /label= Mature_protein
XX
PN   WO200144455-A2.
XX
PD   21-JUN-2001.
XX
PF   12-DEC-2000; 2000WO-GB04741.
XX
PR   15-DEC-1999;   99GB-0029487.
XX
PA   (ASTR ) ASTRAZENECA AB.
PA   (ASTR ) ASTRAZENECA UK LTD.
XX
PI   Beri R;
XX
DR   WPI; 2001-398145/42.
DR   N-PSDB; AAF90491.
XX
PT   Novel antisense DNA oligonucleotide useful for inhibiting the
PT   expression of wild type COL1A1 gene, for treating, reducing the risk
PT   of, and preventing collagen disorders  -
XX
PS   Disclosure; Page 21-26; 30pp; English.
XX
CC   The present sequence is that of the pro-alpha-1 chain of human
CC   type I procollagen.  The present invention relates to antisense
CC   oligonucleotides (ASOs) and their use in inhibiting expression of
CC   type I procollagen.  The ASOs comprise 18-25 nucleotides and are
CC   complementary to a specific region within the type I collagen
CC   pro-alpha-1 chain gene (see AAF90491), especially those given in
CC   AAF90492-503.  They are capable of inhibiting the expression of
CC   the pro-alpha-1 chain in a cell that expresses it.  The ASOs are
CC   used in a claimed method of treating, or reducing a risk of, a
CC   collagen disorder.  Such disorders may include those caused by
CC   overproduction of collagen fibres, such as liver cirrhosis, kidney,
CC   liver and heart fibrosis, scleroderma, hypertrophic scars and
CC   keloids.
XX
SQ   Sequence   1464 AA;

  Query Match            100.0%;  Score 333;  DB 22;  Length 1464;
  Best Local Similarity  100.0%;  Pred. No. 1.1e-22;
  Matches   59;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    531 eaglpgakgltgspgspgpdgktgpppgpagqdgrpgpppgppgargqagvmgfpgpkgaa 589


RESULT  33
AAY84539
ID   AAY84539 standard; Protein; 1388 AA.
XX
AC   AAY84539;
XX
DT   25-JUL-2000  (first entry)
XX
DE   Amino acid sequence of a chimeric collagen 1 (alphal)/decorin protein.
XX
KW   Extracellular matrix protein; self aggregation; hydroxylated proline;
KW   trans-4-hydroxyproline; 3-hydroxyproline; recombinant protein production;
KW   collagen; fibrinogen; fibronectin; post translational hydroxylation;
KW   decorin; chimera.
XX
OS   Chimeric - Homo sapiens.
OS   Chimeric - Unidentified.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 87
FT                   /note= "Gly encoded by GCG"
FT   Misc-difference 305
FT                   /note= "Glu encoded by CAA"
FT   Misc-difference 363
FT                   /note= "Gly encoded by CGT"
FT   Misc-difference 378
FT                   /note= "Glu encoded by GGT"
FT   Misc-difference 429
FT                   /note= "Gly encoded by CGA"
FT   Misc-difference 444
FT                   /note= "Gly encoded by CGC"
FT   Misc-difference 543
FT                   /note= "Gly encoded by GCC"
FT   Misc-difference 546
FT                   /note= "Gly encoded by GCT"
FT   Misc-difference 606
FT                   /note= "Gly encoded by GAC"
FT   Misc-difference 702
FT                   /note= "Gly encoded by CGT"
FT   Misc-difference 815
FT                   /note= "Pro encoded by CTT"
FT   Misc-difference 858
FT                   /note= "Gly encoded by GCT"
FT   Misc-difference 1066
FT                   /note= "Gly encoded by GCC"
XX
PN   EP992586-A2.
XX
PD   12-APR-2000.
XX
PF   07-OCT-1999;   99EP-0119184.
XX
PR   09-OCT-1998;   98US-0169768.
XX
PA   (USSU ) US SURGICAL CORP.
XX
PI   Gruskin EA,  Buechter DD,  Zhang G,  Connolly K;
XX
DR   WPI; 2000-259138/23.
DR   N-PSDB; AAA12499.
XX
PT   Production of extracellular matrix proteins containing
PT   4-trans-hydroxyproline results in native self aggregating proteins,
PT   useful on medical implants -
XX
PS   Claim 25; Fig 17A-B; 260pp; English.
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XX
CC   The specification describes a method for producing an extracellular
CC   matrix protein or its fragment. The extracellular matrix protein is
CC   capable of self aggregating in a cell which does not ordinarily
CC   hydroxylated prolines. The method comprises optimising a nucleic acid
CC   sequence for expression in the cell by substitution of codons preferred
CC   by that cell for naturally occurring codons not preferred by the cell;
CC   incorporating the nucleic acid sequence into the cell; and contacting
CC   the cell with a hypertonic growth medium containing at least one amino
CC   acid, selected from the group consisting of trans-4-hydroxyproline and
CC   3-hydroxyproline to allow at least one of the amino acids to be
CC   assimilated into the cell and incorporated into the extracellular matrix
CC   protein. The method may be used to make host cells assimilate and
CC   incorporate trans-4-hydroxyproline into proteins. This is especially
CC   useful in the recombinant production of proteins such as collagen,
CC   fibrinogen and fibronectin whose ability to self aggregate and produce
CC   functional proteins depends on the post translational hydroxylation of
CC   proline. The method is also useful in studying the structure and function
CC   of polypeptides which do not normally contain trans-4-hydroxyproline.
CC   The present sequence represents a chimeric collagen 1 (alphal)/decorin
CC   protein, which may be produced using the method of the invention.
XX
SQ   Sequence   1388 AA;


  Query Match             97.6%;  Score 325;  DB 21;  Length 1388;
  Best Local Similarity   98.3%;  Pred. No. 5.7e-22;
  Matches   58;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
          |||||||| ||||||||||||||||||||||||||||||||||||||||||||||||||
Db    370 eaglpgakeltgspgspgpdgktgppgpagqdgrpgppgppgpargqagvmgfpgpkgaa 428


RESULT  34
AAY06239
ID   AAY06239 standard; Protein; 595 AA.
XX
AC   AAY06239;
XX
DT   23-AUG-1999  (first entry)
XX
DE   Mouse recombinant type I collagen COL1A1-2.
XX
KW   Type I collagen; COL1A2-1; mouse; silver halide; emulsion;
KW   peptizer; photography.
XX
OS   Mus sp.
XX
FH   Key             Location/Qualifiers
FT   Cleavage-site   38..41
FT                   /note= "MGPR protease recognition sequence"
FT   Cleavage-site   122..125
FT                   /note= "MGPR protease recognition sequence"
XX
PN   EP926543-A1.
XX
PD   30-JUN-1999.
XX
PF   15-DEC-1998;   98EP-0204263.
XX
PR   24-DEC-1997;   97NL-1007908.
XX
PA   (FUJF ) FUJI PHOTO FILM BV.
XX
PI   Bouwstra JB,  De Wolf FA,  Mooibroek A,  Van Den Bosch TJ;
PI   Van Heerde GV,  Van Rijn AC,  Werten MWT,  Wind RD;
XX
DR   WPI; 1999-349297/30.
XX
PT   New tabular silver halide emulsion, useful for production of
PT   components for photographic products
XX
PS   Claim 9; Fig 10; 30pp; English.
XX
CC   This is the amino acid sequence of recombinant mouse type I
CC   collagen COL1A1-2, obtained by expression of COL1A1-2 cDNA from
CC   vector pCOL1A1-2 in transformed Pichia pastoris GS115 host cells.
CC   The invention relates to a new tabular silver halide emulsion
CC   comprising silver halide grains nucleated in the presence of a
CC   nucleation peptizer and grown in the presence of a growth peptizer,
CC   at least one of the peptizers being a pure collagen-like material,
CC   such as the present protein, prepared by genetic engineering of a
CC   native collagen-encoding nucleic acid.  Also claimed is production
CC   of the recombinant collagen-like polypeptide comprising expression
CC   of a collagen-like polypeptide nucleic acid sequence by a
CC   microorganism selected from Hansenula, Trichoderma, Aspergillus and
CC   preferably P. pastoris, the collagen-like polypeptide being obtained
CC   at a level greater than 0.95 g/l (especially over 3 g/l) and free of
CC   helix structure.  The emulsion is suitable for photographic
CC   application.  Recombinant DNA technology enables the efficient
CC   production of large amounts of substantially pure collagen material,
CC   providing a high level of expression without requiring expensive
CC   media, expression hosts or non-secreting expression hosts.  The
CC   collagen can be selected and/or adapted for optimal use in each
CC   particular stage of the production process of the photographic
CC   product.  Removal of collagen MGPR motifs that are recognised by a
CC   P. pastoris protease will also increase expression levels.
XX
SQ   Sequence   595 AA;


  Query Match             96.4%;  Score 321;  DB 20;  Length 595;
  Best Local Similarity   96.6%;  Pred. No. 6e-22;
  Matches   57;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy      1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
          |||||||||||||||||||||||||||||||||| |||||||||||||||||| |
Db    352 eaglpgakgltgspgspgpdgktgppgpagqdgrpgpagppgargqagvmgfpgpkgta 410


RESULT  35
AAY06240
ID   AAY06240 standard; Protein; 822 AA.
XX
AC   AAY06240;
XX
DT   23-AUG-1999  (first entry)
XX
DE   Mouse recombinant type I collagen COL1A1-3.
XX
KW   Type I collagen; COL1A2-3; mouse; silver halide; emulsion;
KW   peptizer; photography.
XX
OS   Mus sp.
XX
FH   Key             Location/Qualifiers
FT   Cleavage-site   38..41
FT                   /note= "MGPR protease recognition sequence"
FT   Cleavage-site   122..125
FT                   /note= "MGPR protease recognition sequence"
XX
PN   EP926543-A1.
XX
PD   30-JUN-1999.
XX
PF   15-DEC-1998;   98EP-0204263.
XX
PR   24-DEC-1997;   97NL-1007908.
XX
PA   (FUJF ) FUJI PHOTO FILM BV.
XX
PI   Bouwstra JB,  De Wolf FA,  Mooibroek A,  Van Den Bosch TJ;
PI   Van Heerde GV,  Van Rijn AC,  Werten MWT,  Wind RD;
XX
DR   WPI; 1999-349297/30.
```

XX
PT New tabular silver halide emulsion, useful for production of
PT components for photographic products
XX
PS Claim 9; Fig 12; 30pp; English.
XX
CC This is the amino acid sequence of recombinant mouse type I
CC collagen COL1A1-3, obtained by expression of COL1A1-3 cDNA from
CC vector pCOL1A1-3 in transformed Pichia pastoris GS115 host cells.
CC The invention relates to a new tabular silver halide emulsion
CC comprising silver halide grains nucleated in the presence of a
CC nucleation peptizer and grown in the presence of a growth peptizer,
CC at least one of the peptizers being a pure collagen-like material,
CC such as the present protein, prepared by genetic engineering of a
CC native collagen-encoding nucleic acid. Also claimed is production
CC of the recombinant collagen-like polypeptide comprising expression
CC of a collagen-like polypeptide nucleic acid sequence by a
CC microorganism selected from Hansenula, Trichoderma, Aspergillus and
CC preferably P. pastoris, the collagen-like polypeptide being obtained
CC at a level greater than 0.95 g/l (especially over 3 g/l) and free of
CC helix structure. The emulsion is suitable for photographic
CC application. Recombinant DNA technology enables the efficient
CC production of large amounts of substantially pure collagen material,
CC providing a high level of expression without requiring expensive
CC media, expression hosts or non-secreting expression hosts. The
CC collagen can be selected and/or adapted for optimal use in each
CC particular stage of the production process of the photographic
CC product. Removal of collagen MGPR motifs that are recognised by a
CC P. pastoris protease will also increase expression levels.
XX
SQ Sequence 822 AA;

Query Match 96.4%; Score 321; DB 20; Length 822;
Best Local Similarity 96.6%; Pred. No. 8.1e-22;
Matches 57; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

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Qy       1 EAGLPGAKGLTGSPGSPGPDGKTGPPGPAGQDGRPGPPGPPGARGQAGVMGFPGPKGAA 59
           |||||||||||||||||||||||||||||||||||| |||||||||||||||||| |
Db     352 eaglpgakgltgspgspgpdgktgppgpagqdgrpgpagppgargqagvmgfpgpkgta 410
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Job time: 2090 sec